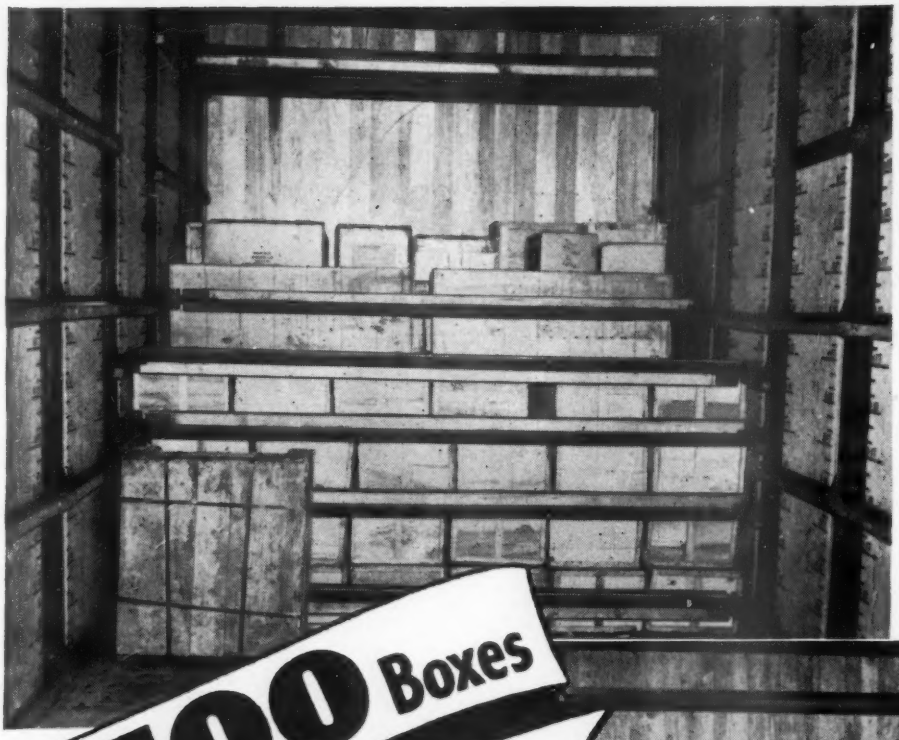
JUNE 23, 1945

Railway Age

Founded in 1856



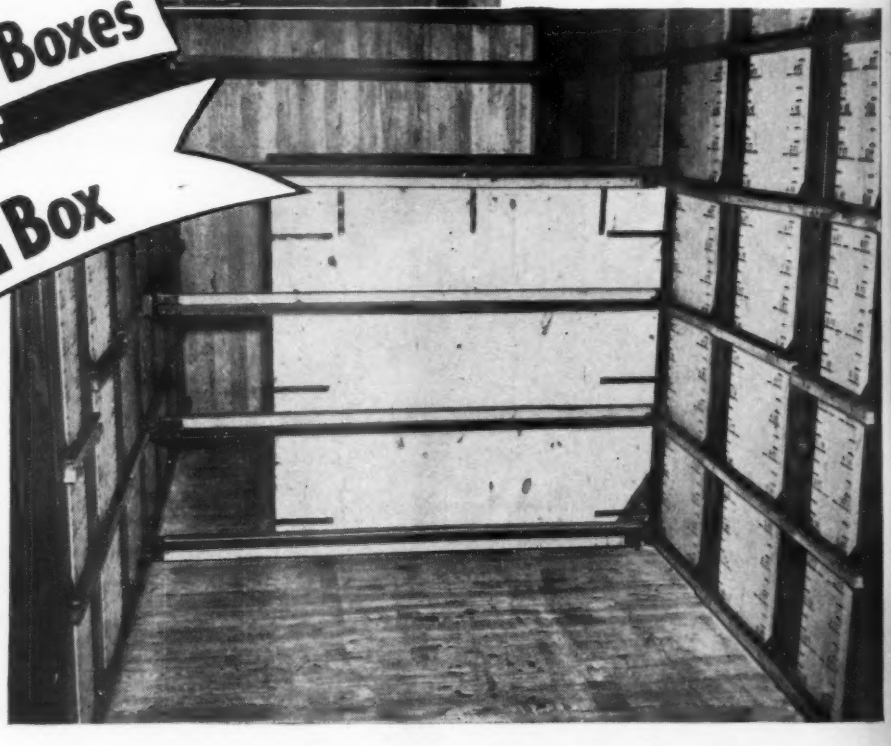
EVANS DETROIT PLANT FLIES
ARMY-NAVY "E" PENNANT

GRIPS THE LOAD and LOCKS THE GRIP

► UTILITY-LOADER ◄

At left, general purpose Utility Loader equipment grip-locking box car load of many pieces of various shapes and sizes. Below, same equipment grip-locking only one piece just as securely.

100 Boxes or 1 Box



Never any slack with GRIP-LOCKED LOADS

Utility Loader *grip-locked* loads have tremendous advantages in shipping to multiple consignees. The general purpose Utility Loader *grips* the load that's left after each unloading . . . and *locks* it against shifting, vibration and shock—the principal causes of damage to freight in transit.

Write for a copy of the Evans Manual today. It illustrates the manifold advantages of general purpose Utility Loader grip-locked loads to shipper, carrier and consignee alike.

FOR THE GOOD OF THE RAILROADS

EVANS PRODUCTS COMPANY

DETROIT 27, MICHIGAN

Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1935, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price $6.00 for one year U. S. and Canada. Single copies, 25 cents each. Vol. 118, No. 25.

HUSKY...

but that's only ONE of its advantages

For many years, Bethlehem's Hook Flange Guard Rail has been known for its ruggedness and durability. Much of its reputation has been built on that ruggedness (we've never heard of one breaking under traffic). But in other ways, too, this guard rail's a winner.

Look at its end-construction, for instance. See how the section is tapered and sloped so that trucks ease smoothly into line, reducing the chances of cracked or chipped wheels.

And note, too, how the hook flange passes under the base of the running rail, so that the weight of the train keeps the guard rail from overturning. And the special tie plates . . . they're shouldered against the guard rail, preventing lateral movement.

All these features add up to one thing—a husky, low-maintenance guard rail that will give you years of service in high-speed, main-line track...or in large classification yards...or on slips and crossings. Ask a Bethlehem man for more details.

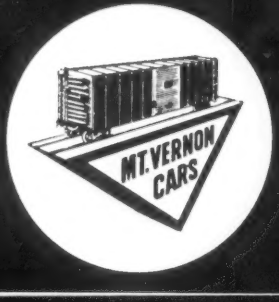
Bethlehem Hook Flange Guard Rail

BETHLEHEM STEEL

MT. VERNON
ALUMINUM
BOX CARS

Again Mt. Vernon takes the lead in the production of new types of equipment designed to give railroads the benefit of the most up-to-date transportation.

Keeping abreast of the constant demand for increased efficiency in railroad operation, Mt. Vernon engineers are cooperating with the railroads and materials manufacturers in the development of new designs and materials for freight cars. Typical of this spirit of cooperation are the thirty experimental aluminum boxcars built for three midwestern railroads—the first boxcars with all-aluminum superstructure ever built.



MT. VERNON

MT. VERNON

Div. of **H. K. PORTER**

PITTSBURGH 22

Factories: Mt. Vernon, Ill. • Pittsburgh, Pa. • Blairsville, Pa

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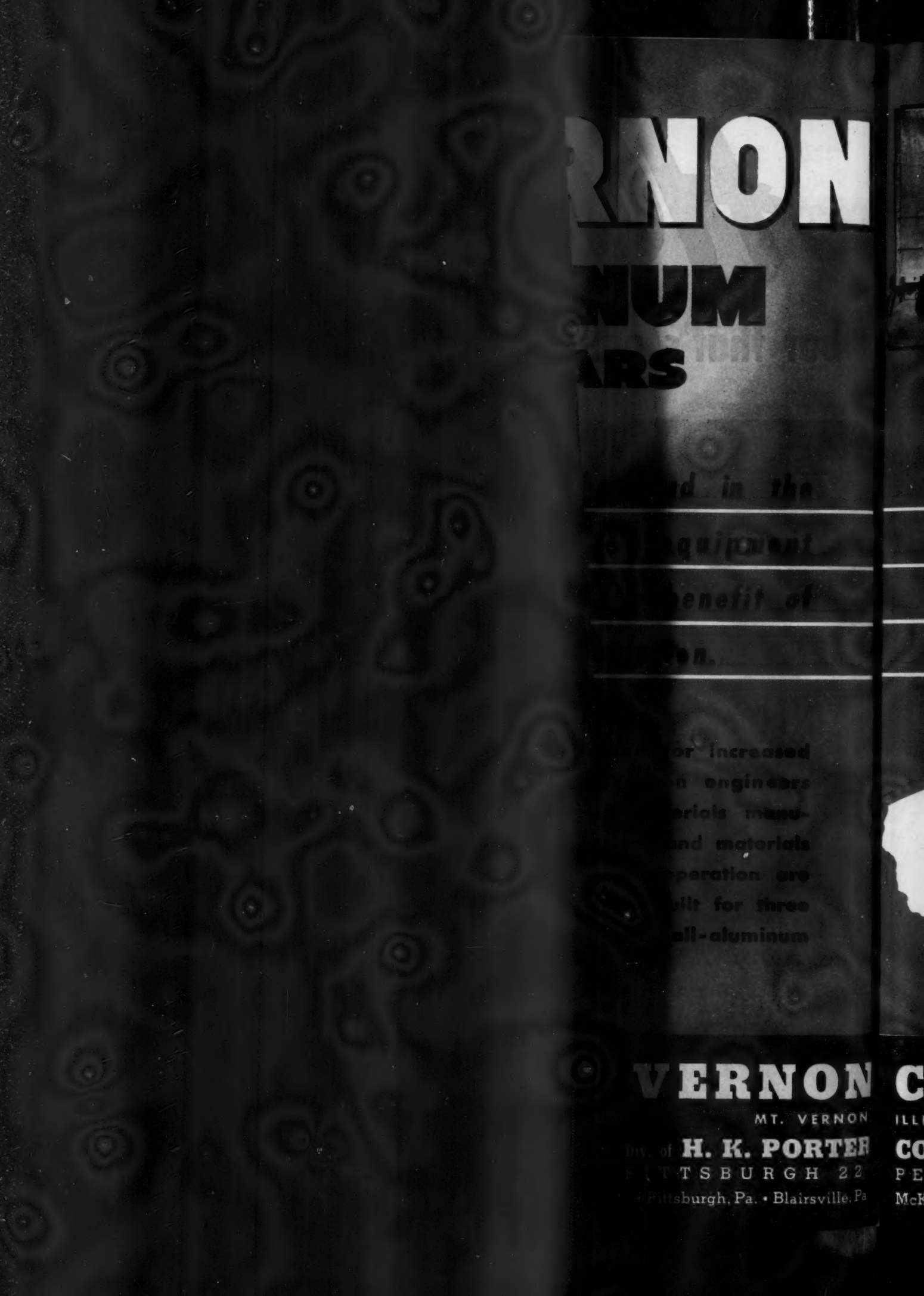
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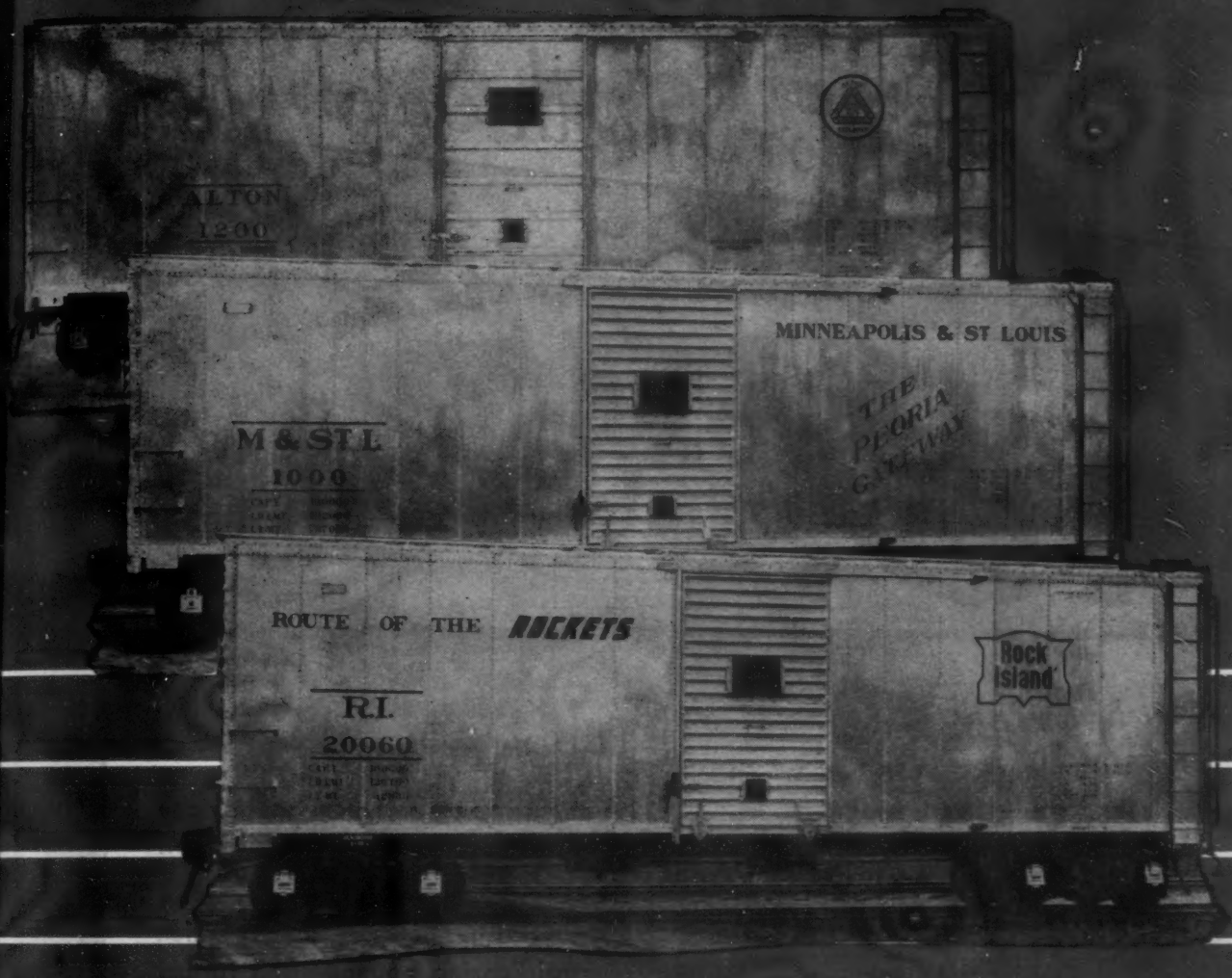


Mt. Vernon's **ADAPTABLE FACILITIES were chosen to build the first all-aluminum-body boxcars.**

CAR MFG. CO.

ILLINOIS

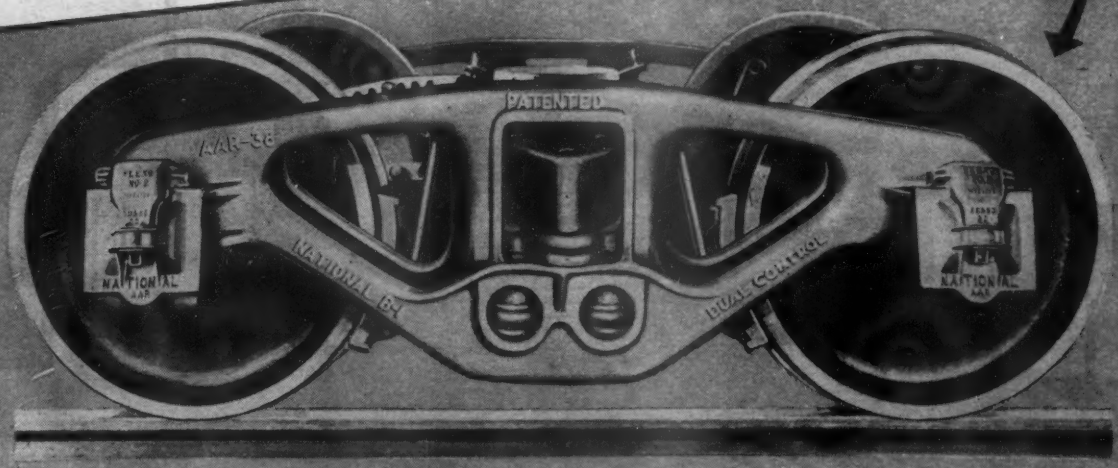
COMPANY, Inc.

PENNSYLVANIA

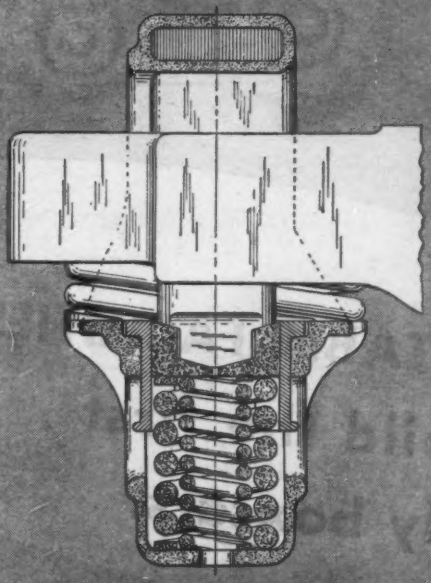
McKeesport, Pa. • Newark, N.J. • New Brunswick, N.J.

PORTER
"Better Built"
Equipment
Established 1866

The Truck For Smooth, Safe Riding



No Spring Plank
No spring plates
Quick Wheel Change



Section thru Control Unit

A smooth riding car means less damage to lading and longer life for equipment.

The National B-1 Truck has four control units (two in each side frame) which control "spring bounce" and forces which tend to throw trucks out of square.

Cars equipped with National B-1 Trucks with Dual Control can be speeded up with Safety.

Smoother riding and Fewer Parts assure lower maintenance costs.

* * *

The truck for Post-war high-speed freight service.

National B-1 with Dual Control.

Specify National B-1 Trucks with Dual Control to keep cars "on the go"

NATIONAL MALLEABLE AND STEEL CASTINGS CO.

General Offices: CLEVELAND, OHIO

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco.
Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.

NEW YORK, SUSQUEHANNA & WESTERN

FIRST ALL DIESEL-ELECTRIC CLASS I ROAD

Delivery of 16th Alco-G.E. diesel-electric completes dieselization program started in 1941. 32 steamers released.

"Our conversion to all diesel-electric operation is producing savings of more than $400,000 a year—a 29 per-cent return on the investment. In addition, diesel-electrics will reinforce our postwar financial position. Four years of wartime experience with Alco-G.E. units has convinced us that 16 of them are capable of handling considerably more freight and passenger traffic, on faster schedules, than was possible with the 32 steam locomotives they replaced."

Henry H. Norton

Trustee, New York, Susquehanna & Western Railroad

Alco GE

AMERICAN LOCOMOTIVE and GENERAL ELECTRIC

How an Alco-G.E. survey started the Sus

ESTIMATED ANNUAL SAVINGS AFTER CONVERSION TO ALL DIESEL-ELECTRIC OPERATION

OPERATING COSTS*	Increase	Decrease
173,708 passenger locomotive-miles at $.5100 less cost per mile		$88,600
548,461 freight locomotive-miles at $.5997 less cost per mile		328,900
Total		417,500
Rent of steam engines		14,600
TAXES		
Net increase	$12,500	
DEPRECIATION		
Net increase	39,800	
ADDITIONAL ENGINEHOUSE EXPENSE		
2496 dispatchments at Jersey City at $4.25 less cost each		10,600
ELIMINATION OF 75 COAL CARS		
Depreciation at 2.83 per cent		5,300
Maintenance at $100 per year		7,500
MAINTENANCE OF WAYS AND STRUCTURES		
Elimination of steam-locomotive facilities		10,900
Improvements for diesel-electrics	3,100	
	$55,400	$466,400
SAVINGS**		$411,000
INVESTMENT—8 ALCO-G.E. DIESEL-ELECTRICS		$1,402,700
RETURN ON INVESTMENT		29.3%

*Based on actual results obtained with 8 Alco-G.E. diesel-electrics during 1941–1944 and calculated for a postwar traffic load equal to 1940.

**Also based on 1941–1944 costs. At 1940 costs the savings would be correspondingly less.

Total saving each year now amounting to more than one-quarter the cost of the diesel-electrics

In two easy steps, the New York, Susquehanna & Western has progressed from an all steam-locomotive road with operating costs of $1.14 per freight locomotive-mile to an all diesel-electric road with operating costs of 60 cents per freight locomotive-mile.

It started in 1941, when Alco-G.E., at the request of the Susquehanna, completed a motive-power survey of the road and showed that the installation of eight 1000-hp Alco-G.E. units would produce operating economies estimated at $130,000 a year—a 19.8 per-cent return on the cost of the eight locomotives.

In service, the diesel-electrics exceeded expectations. In 1943, it was possible to effect a 25 per-cent reduction in motive power and, at the same time, absorb the Susquehanna's 23 per-cent increase in traffic over that of 1942.

As a result of this highly satisfactory performance, the Susquehanna requested Alco-G.E. to make another survey in 1944, this time with the objective of releasing the balance of the Susquehanna's steamers, passenger as well as freight. Eight more 1000-hp Alco-G.E. units of the road-switcher type were purchased. The last one has just been delivered, making the Susquehanna the first all diesel-electric Class I road. The few steam locomotives temporarily retained will be retired as soon as present traffic peaks ease off.

On the basis of actual costs in 1943, the 16 diesel-electrics are slashing operating costs at the rate of $417,000 a year. In addition, the purchase of 75 coal cars to service steam locomotives has been made unnecessary. The savings in maintenance of way and structures, after allowance for new diesel-electric facilities, amount to more than $7000 a year.

An important factor in the initiation of this diesel-electric program was the motive-power study made by Alco-G.E. in 1941. It is one reason why the Susquehanna, with all diesel-electrics, is thoroughly prepared to handle postwar traffic most efficiently and economically.

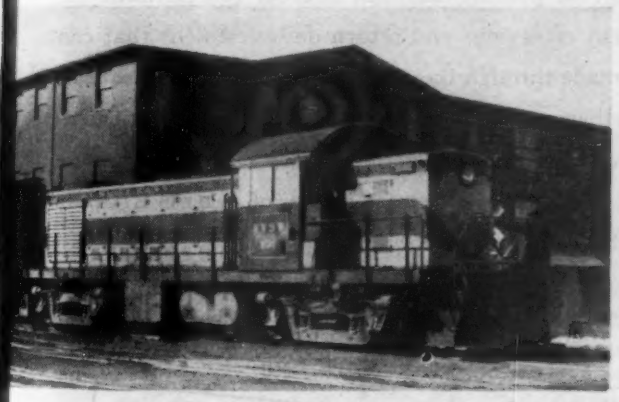
Alco GE

AMERICAN LOCOMOTIVE

e Susquehanna toward $411,000 annual savings

20,000,000 PASSENGER-MILES a year are handled by the diesel-electrics at an operating cost of 49 cents per locomotive-mile as against $1.00 per locomotive-mile for steamers.

6575 HOURS OF YARD SERVICE a year are being performed by the diesel-electrics at savings of more than $20,000 a year compared with the operating cost of steamers.



113,000,000 FREIGHT TON-MILES (estimated for 1945) will be handled by the diesel-electrics at an operating cost of 60 cents per locomotive-mile, compared with $1.14 per locomotive-mile for steamers.

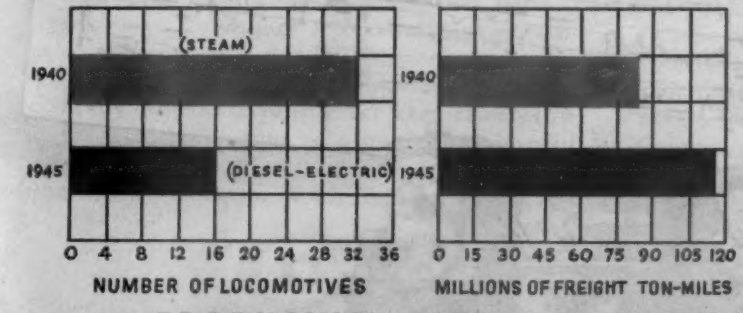
—"a commendable record" says ICC

"... We believe that some additional recognition should be given in the capital structure to the earning possibilities of this railroad. The debtor's trustee has made a commendable record in reducing the past and probable future operating expenses and in the development of traffic possibilities. Although the savings in operating expenses are not of themselves assurances of future traffic, we think that in the light of all the circumstances, including the possible savings through increases in the use of diesel-electric power, the conclusion of division 4 that the reorganized company's expectable earnings available for interest and other corporate purposes in a normal year are from $600,000 to $700,000, is somewhat too low. Upon further consideration we find that such earnings may be expected to range from $700,000 to $775,000. Under all the circumstances, we conclude that the amount of income bonds issuable at reorganization should be increased to $4,000,000 and that the amount of other securities should remain as approved in the prior report. Stating the 35,000 shares of common stock at $100 a share, the resulting capitalization will be $15,952,844. We will modify the plan accordingly."

—Excerpt from ICC Plan of Reorganization for NYS&W RR.

RESULTS OF SUSQUEHANNA'S CONVERSION TO ALL DIESEL-ELECTRIC OPERATION

50% FEWER LOCOMOTIVES DO——39% MORE WORK AT——————58% LOWER COST



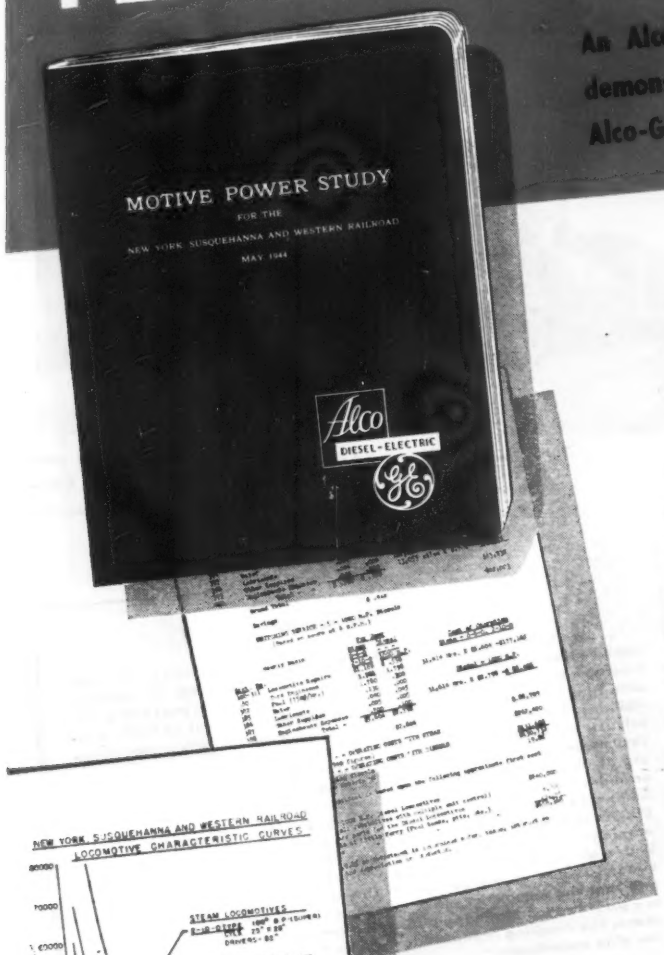
Cost Per Mile (Actual, 1943)	Passenger Service		Freight Service	
	Steam	Diesel-electric	Steam	Diesel-electric
Repairs	$.3085	$.1353	$.3365	$.1355
Enginemen	.2349	.2441	.2885	.2856
Fuel	.3330	.0775	.3906	.0773
Water	.0291		.0391	
Lubricants	.0100	.0180	.0100	.0180
Other supplies	.0100	.0100	.0100	.0100
Enginehouse expense	.0812	.0116	.0812	.0116
	$1.0067	$.4967	$1.1379	$.5382
SAVINGS		$.5100		$.5997

----PRODUCING ANNUAL SAVINGS OF $411,000

and GENERAL ELECTRIC

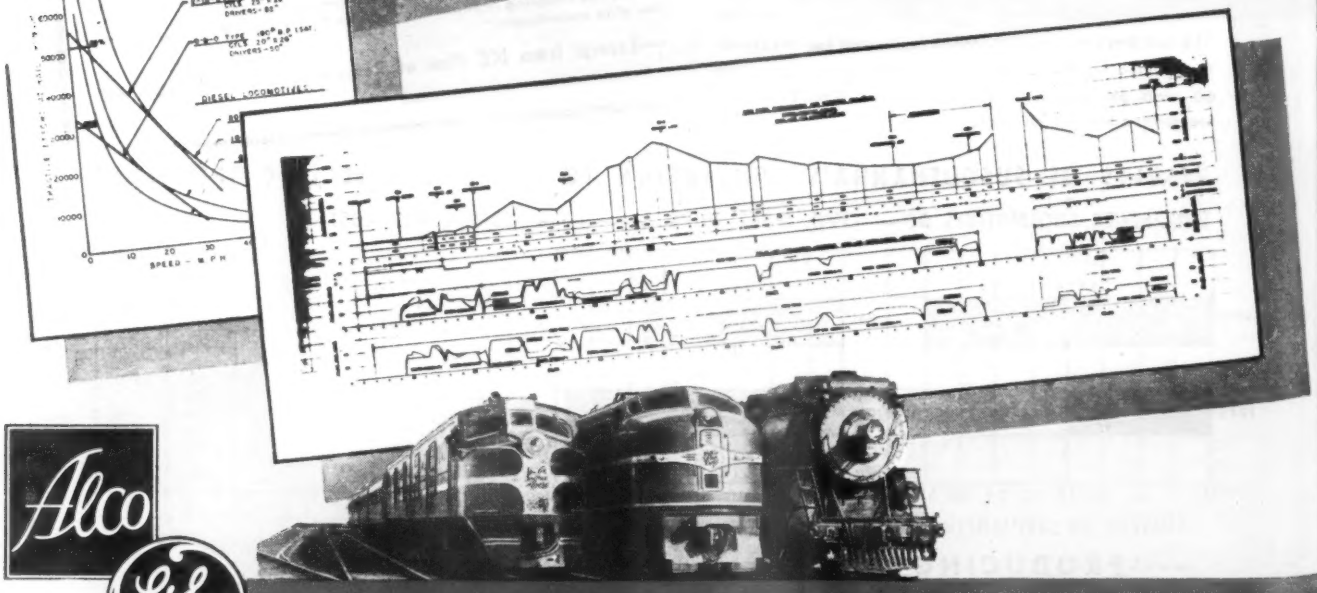
PLANNING FOR INCREASED EARNING POWER?

An Alco-G.E. motive-power study and performance demonstration will give you facts on the economies Alco-G.E. diesel-electrics will produce on your road.



Whether you are planning for a single unit or complete conversion to diesel-electric operation—you can obtain the services of our motive-power engineers for a comprehensive survey of your operations.

These engineers, working with your own organization, are prepared to study each locomotive assignment, the profile and characteristics of your terrain, and your present facilities, in order to determine the extent of savings and return on investment that can be made through the use of Alco-G.E. diesel-electrics. Furthermore, we'll gladly make a performance demonstration on your property to enable you to compare the performance characteristics of Alco-G.E. units with your present motive power.



Alco GE

AMERICAN LOCOMOTIVE and GENERAL ELECTRIC

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SPEAKING OF POSITIVE CONTROL...

HERE'S A CONCRETE EXAMPLE

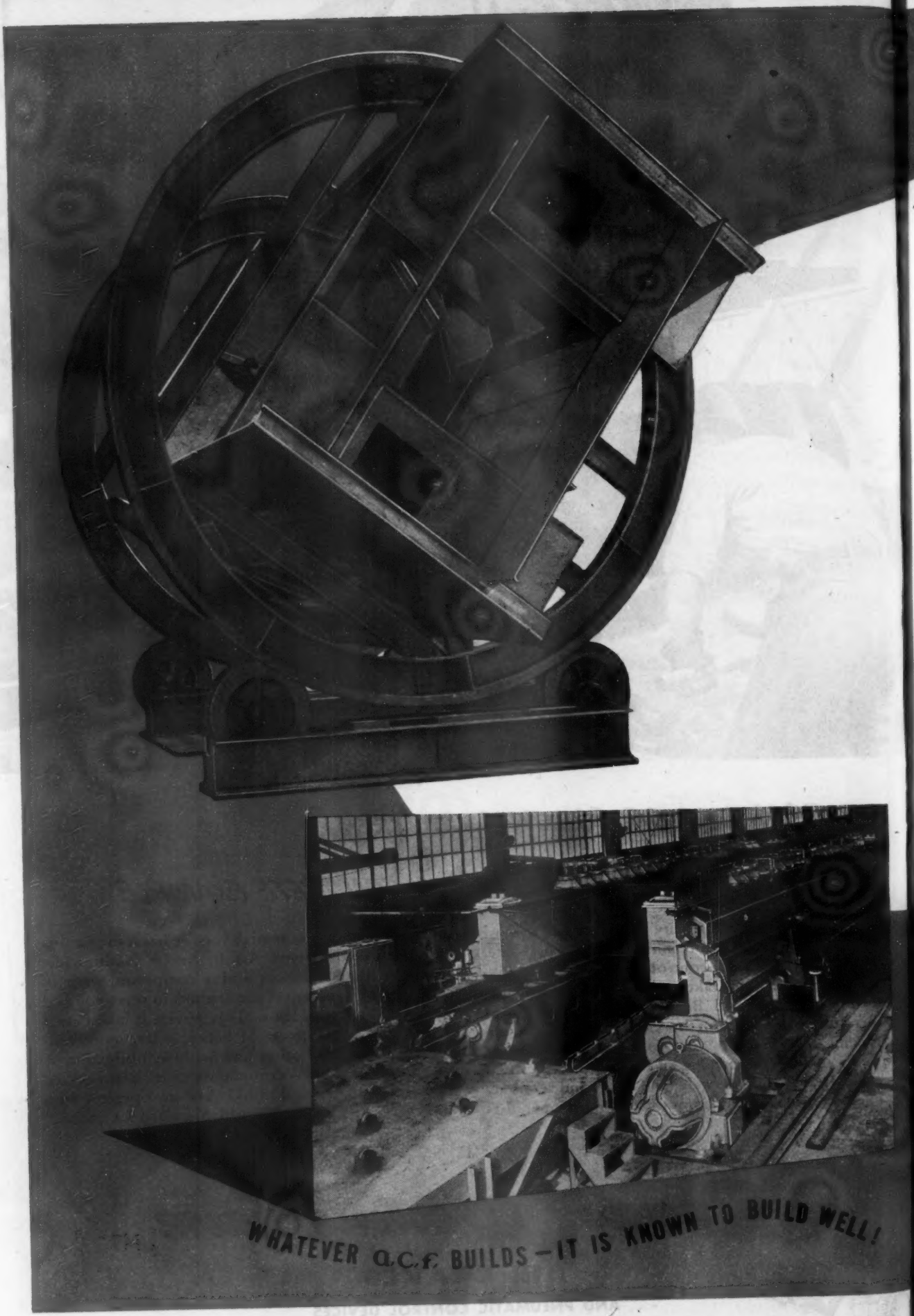
By far, the greater majority of the world's most essential transportation moves under the safe, positive, economical control of genuine Bendix-Westinghouse Air Brakes ★ Naturally, your business is different and Bendix-Westinghouse takes this into consideration by engineering a control specifically suited to your exact requirements ★ Years of leadership, plus an organization devoted exclusively to the safety, dependability and economy of the world's foremost motor transport operators and manufacturers, assures you the finest in genuine Bendix-Westinghouse Air Brakes ★ Nationwide, authorized distributors and a competent force of factory representatives are anxious to serve you and your braking problems. This service is maintained strictly in the interest of better, safer, more economical transportation and without obligation ★ Genuine Bendix-Westinghouse Air Brakes cost much less than you'd think! Ask any operator who has ever used this "World Standard of Safety."

Bendix-Westinghouse

AIR BRAKES

AND PNEUMATIC CONTROL DEVICES

IT IS SIGNIFICANT THAT AMERICA'S FINEST MOTOR TRUCK FLEETS ARE EQUIPPED WITH BENDIX-WESTINGHOUSE AIR BRAKES


WHATEVER A.C.F. BUILDS—IT IS KNOWN TO BUILD WELL!

In Building this All-Welded Tender, Too, the Know-How kept pace with the Need!

Built by a.C.f. for use abroad, this locomotive tender is part of a train which supplies power for devastated areas. While the eye can detect an occasional rivet or bolt — the tender is for all practical purposes, a 100 per cent welded product.

The need was great and the time was short — so to speed these tenders to completion, a.C.f. at its Milton plant developed the rotating POSITIONER which brings all parts to be welded easily accessible for downhand welding.

Positioner, jigs, a giant double-plate planer which in one operation cuts plates from 48 to 163 inches wide to the amazing maximum tolerance of 0.0002 inch — all are tools indicative of a.C.f.'s will and skill to make superior rolling stock — to make it faster — to make it last longer!

a.C.f. AMERICAN CAR AND FOUNDRY COMPANY

NEW YORK · CHICAGO · ST. LOUIS · CLEVELAND · WASHINGTON
PHILADELPHIA · PITTSBURGH · ST. PAUL · SAN FRANCISCO

Junior Club Car

...RECREATION FOR JUNIOR
...RELAXATION FOR GROWN-UPS

DESIGNED by Pullman-Standard, this car will make traveling with junior a pleasure. The reaction of parents will be favorable to the railroads using this type of equipment.

This is the latest of our continuing endeavors to create profitable ideas for the railroads.

While this Junior Club Car and our other recent offerings are as new as tomorrow, they are backed by eighty-six years of experience in building quality. Our engineers and artisans are conscious of the background of this organization and this consciousness is reflected in the superior craftsmanship for which Pullman-Standard built cars are known.

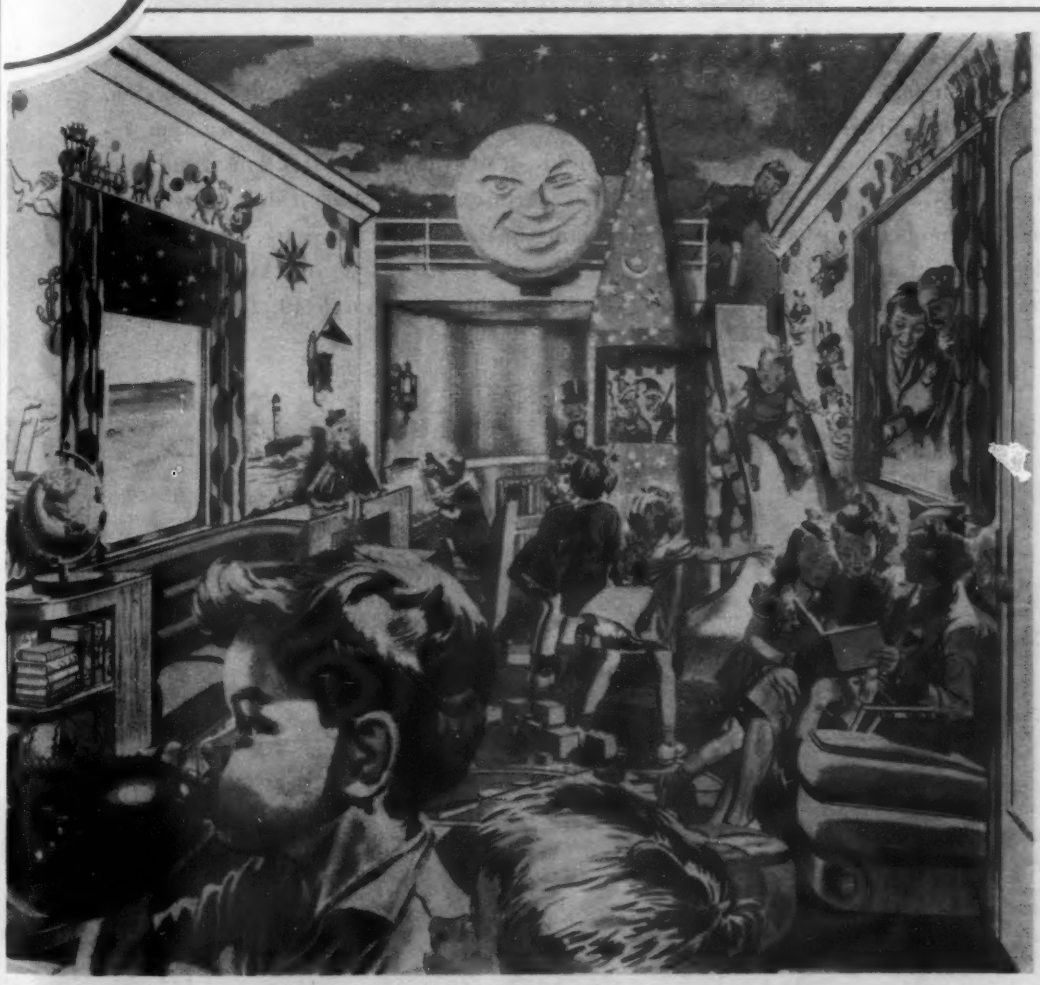
"Built By PULLMAN-STANDARD" means

Built By MASTER CRAFTSMEN

Pullman-

CHICAGO • NEW YORK

The "Junior Club Car" occupies about one-fourth of a car . . . the remaining three-fourths may be any type of railroad car accommodation.



The car is a veritable "fun house" on wheels.

PATENT APPLIED FOR

Standard CAR MANUFACTURING COMPANY

CLEVELAND • WASHINGTON, D. C. • PITTSBURGH • BALTIMORE • BIRMINGHAM • WORCESTER, MASS.

San Francisco Sales Representative, Mark Noble

Let's look at the record of Alco

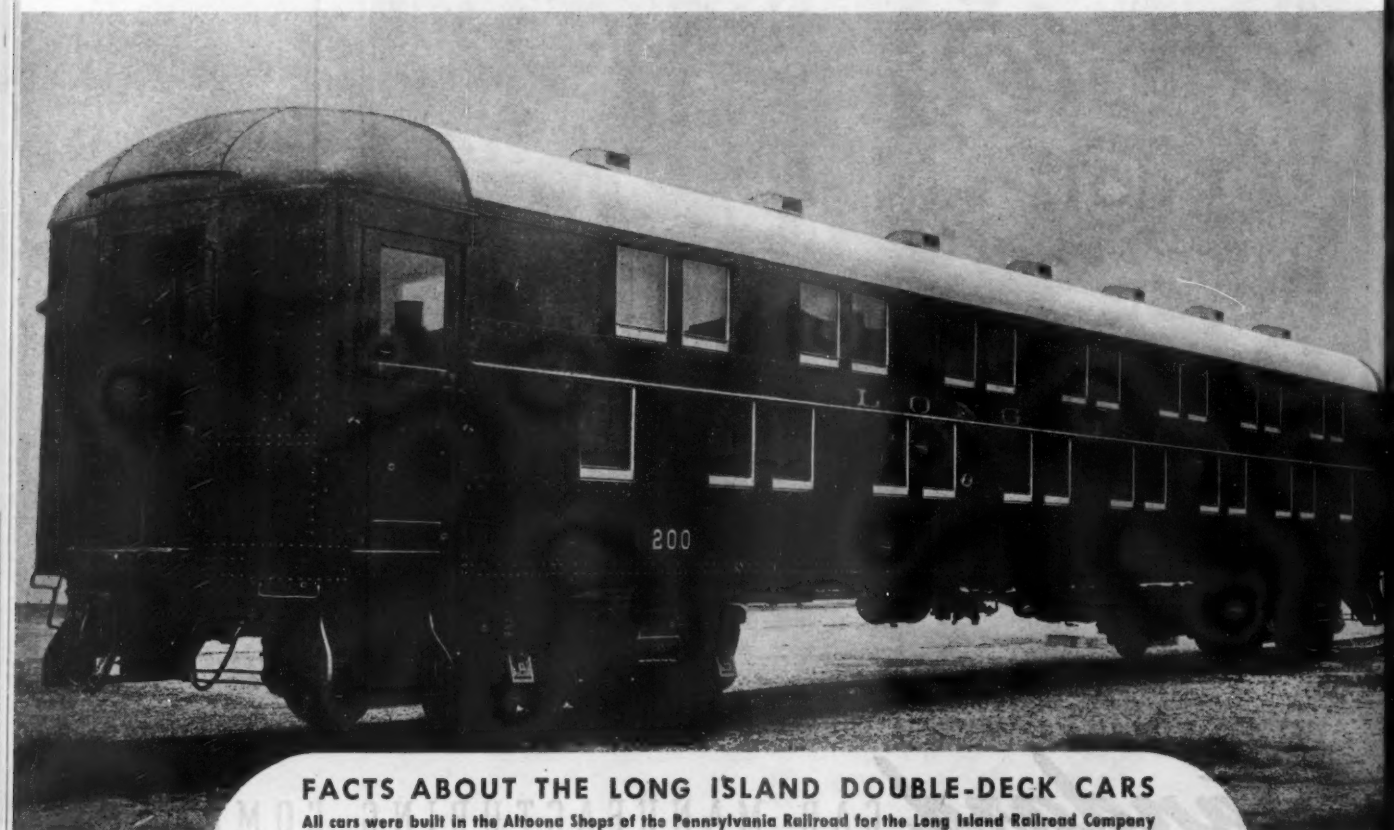
LONG ISLAND RAILROAD DOUBLE-DECK CARS

These three Long Island Railroad double-deck cars were built largely with aluminum furnished by Alcoa, and are in good condition after years of service.

First of the three, Car No. 200, was built in 1932 and has been in operation for more than 290,300 miles. Motor Car No. 1347, built in 1937, has traveled more than 159,900 miles. Trailer Car No. 201, built at same time, has completed more than 165,700 miles of service.

Not only has aluminum construction reduced dead weight substantially and cut power consumption, but it has proved its lasting qualities over the years.

ALUMINUM COMPANY OF AMERICA, 2178 Gulf Building, Pittsburgh 19, Pennsylvania.



FACTS ABOUT THE LONG ISLAND DOUBLE-DECK CARS

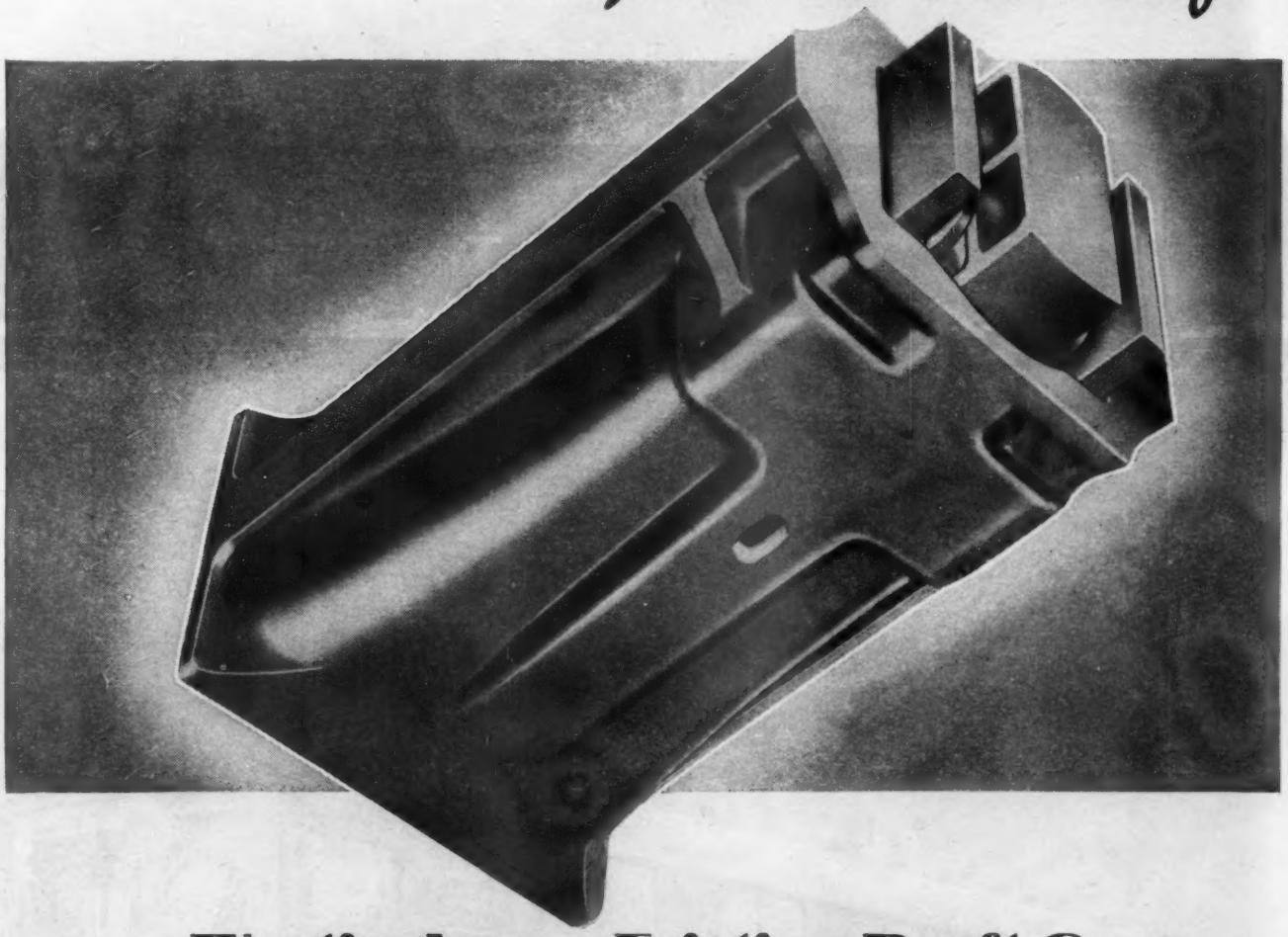
All cars were built in the Altoona Shops of the Pennsylvania Railroad for the Long Island Railroad Company

Car No.	Passengers Seated	Length of Body	Weight Light with Elec. Equipment	Lb. per Seated Passenger
200	120	62′ 2″	71,800	600
201	134	70′ 0″	94,200	700
1347	134	70′ 0″	120,800	900

Complete Protection

...From Coupler to Coupler

...From Rail to Roof!



Westinghouse Friction Draft Gears

Absorb and Dissipate Shocks at the Couplers

Modern Friction Draft Gears are, and continue to be, an evolution of design and experience resulting in developments which have more than kept pace with the unparalleled progress of Railroading.

Over 98% of the cars in freight carrying service are A.A.R. construction, and over 96% have Friction Draft Gears.

Cardwell Westinghouse Co., Chicago

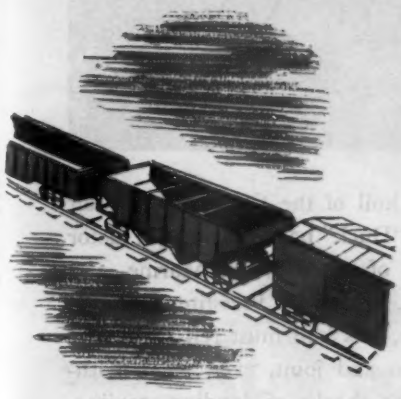
Canadian Cardwell Co., Ltd., Montreal

Select the Weight-Saving Steel which meets your *Specific* needs from *Republic's*

3 HIGH STRENGTH STEELS

REPUBLIC ALDECOR ★ REPUBLIC COR-TEN

REPUBLIC DOUBLE STRENGTH



To simplify your weight reduction problems, Republic now offers a COMPLETE LINE of *three* different High Strength Steels—ALDECOR, COR-TEN and DOUBLE STRENGTH.

While these three low alloy steels are quite similar, they differ somewhat in chemistry, and in forming and welding characteristics. That is why Republic — following its basic policy of providing a wide range of steels and steel products for practically every need of industry—produces all three steels.

In widespread use for more than a decade, COR-TEN and DOUBLE STRENGTH STEELS already have proved themselves as dependable, low cost, weight saving materials. ALDECOR, although a newcomer in the field, possesses forming and welding qualities which should enable it to surpass its companions in certain types of applications.

From a physical standpoint, all three steels possess a minimum yield strength of 50,000 p.s.i. They provide comparable resistance to atmospheric corrosion . . . and, in abrasion resistance, they are equal to carbon steels of like physical properties. In bars, plates, sheets and strip, all three may be worked and welded readily.

To aid you in selecting the high strength analysis which is best adapted to your needs, Republic offers you the wholehearted cooperation of its seasoned metallurgical staff. These specialists, with long experience in the application of weight saving steels to transportation equipment and other types of machinery, are ready to work with you NOW.

Write for folder No. 434.

REPUBLIC STEEL CORPORATION
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Bldg., New York 17, N. Y.

Republic

HIGH STRENGTH STEELS

ALDECOR • COR-TEN • DOUBLE STRENGTH

Other Republic Products include Carbon, Alloy and St[illegible] — Sheets — Plates — Pipe — [illegible] — Electric Resistance Welded Tubes

How PRESSTITE SEALERS Help the Columbia "Duck" To Save Lives At Sea

A Partial List of Industries for Which Presstite has successfully Developed Special Sealing Compounds:

For the Aircraft Industry:
- Sealers for Integral Fuel Tanks
- Fuselage Seams
- Drop-off, Expendable Fuel Tanks
- Gun Turrets
- Synthetic Glass
- Instruments
- Intercoolers
- Air Ducts
- Insulating Dissimilar Metals
- Seaplane Floats

For the Refrigeration Industry:
- Sealers for Domestic and Commercial Refrigerators
- Bonding and Sealing Low Temperature Insulation in Refrigerated Rooms

For the Railroads:
- Sealers for Insulating, Soundproofing, and Weatherproofing of Railway Cars — Sealing Car Windows and Spot Welded Seams

For the Building Industry:
- Roof Coatings, Caulking and Waterproofing Compounds

For the Radio Industry:
- Sealers for Radio Panels and Cases, Coil Impregnation — Many Communication Equipment Applications

For the Automotive Industry:
- Special Adhesives and Sealers

For the Construction Industry:
- Sealers for Jointing Sewer Pipes
- Sealers for Waterproofing Excavation Work

Miscellaneous:
- For Glazing Greenhouse Windows
- Extruded Caulking Compounds
- Ammunition Paints
- Plus Many Special Products for the Army and Navy

Our Engineering, Technical, and Laboratory facilities are at the service of any industry with a sealing problem.

Application of Presstite Extruded Seam Sealing Tape to Hull of Columbia Aircraft's J2F6.

The watertight hull of the Columbia Aircraft Corporation's "Duck" has been a major factor in saving the lives of many Navy, Marine, and Coast Guard pilots. Sealed by Presstite Extruded Seam Sealing Tape, this hull must remain watertight in every seam and joint, even when withstanding the terrific shocks of landing, taxiing, and taking off in terrific seas when rescuing downed fliers.

The "Duck" has made many sea rescues in waters so rough that take-offs are impossible — on one occasion *taxiing nine miles* through surf to calmer waters, yet the hull stayed tight.

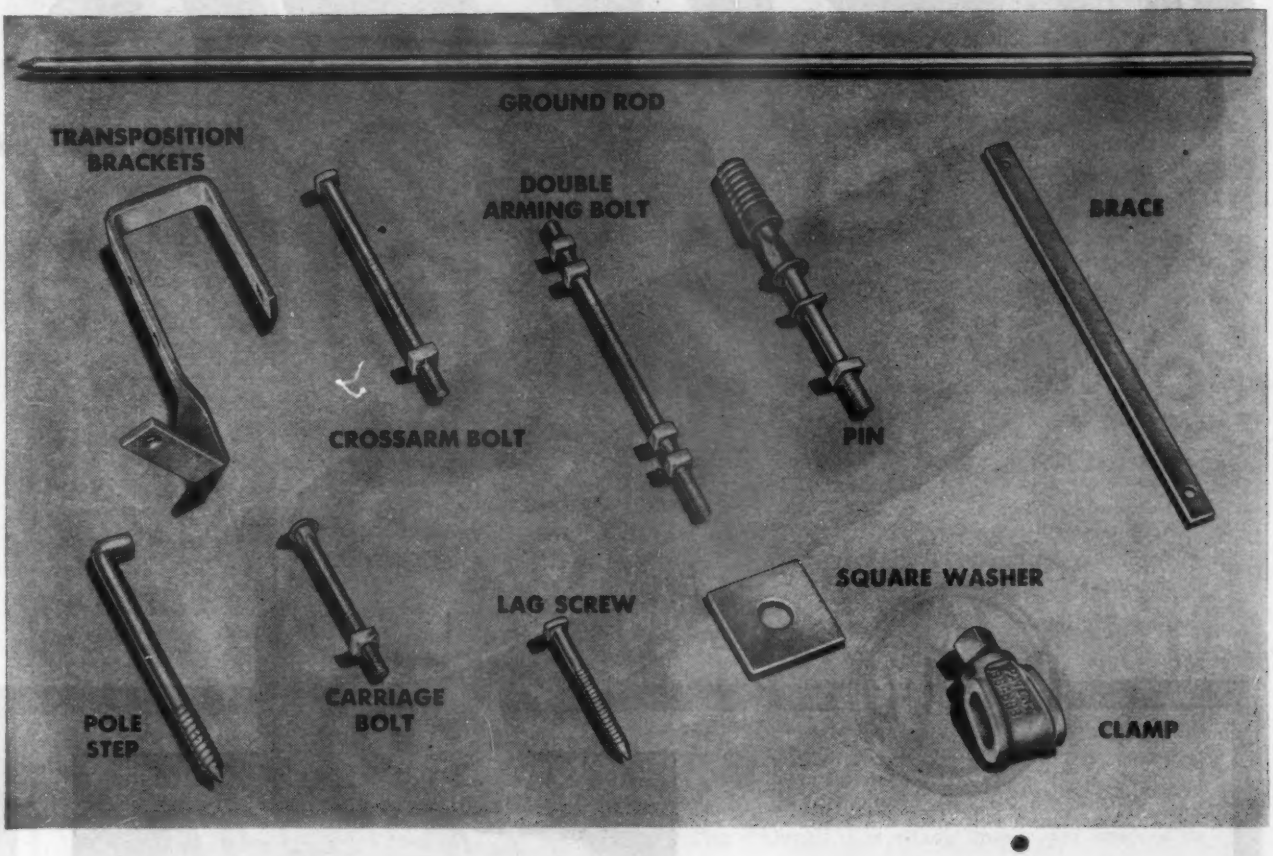
Again Presstite Sealing Compounds met a specific need and stood the most rigorous tests of use. To all industry, Presstite offers the same engineering skill, technical knowledge, and research facilities to solve *industrial sealing problems*.

Presstite's sealing specialists are ready to work with any manufacturer that requires sealers of any kind. Just send us your requirements — today.

PRESSTITE SEALING COMPOUNDS

PRESSTITE ENGINEERING COMPANY
3954 Chouteau Avenue St. Louis 10, Missouri

HARDWARE for RAILWAY POLE LINES



As distributor of Hubbard Hardware, Graybar offers you high-quality hardware designed specifically for signal and communication lines — including special supplies for high-frequency carrier circuits. You will find the Graybar Man near you well qualified to help you select and apply the right items for your particular railway needs.

Graybar's nationwide network of warehouses, stocking all types of pole-line hardware, assures you of the fastest deliveries possible under today's conditions. Graybar is your most convenient source of supply also for poles, crossarms, copper and steel wire and strand, insulators, tools, and everything else you need for line maintenance and construction. *Graybar Electric Company, Graybar Building, New York 17, N.Y.*

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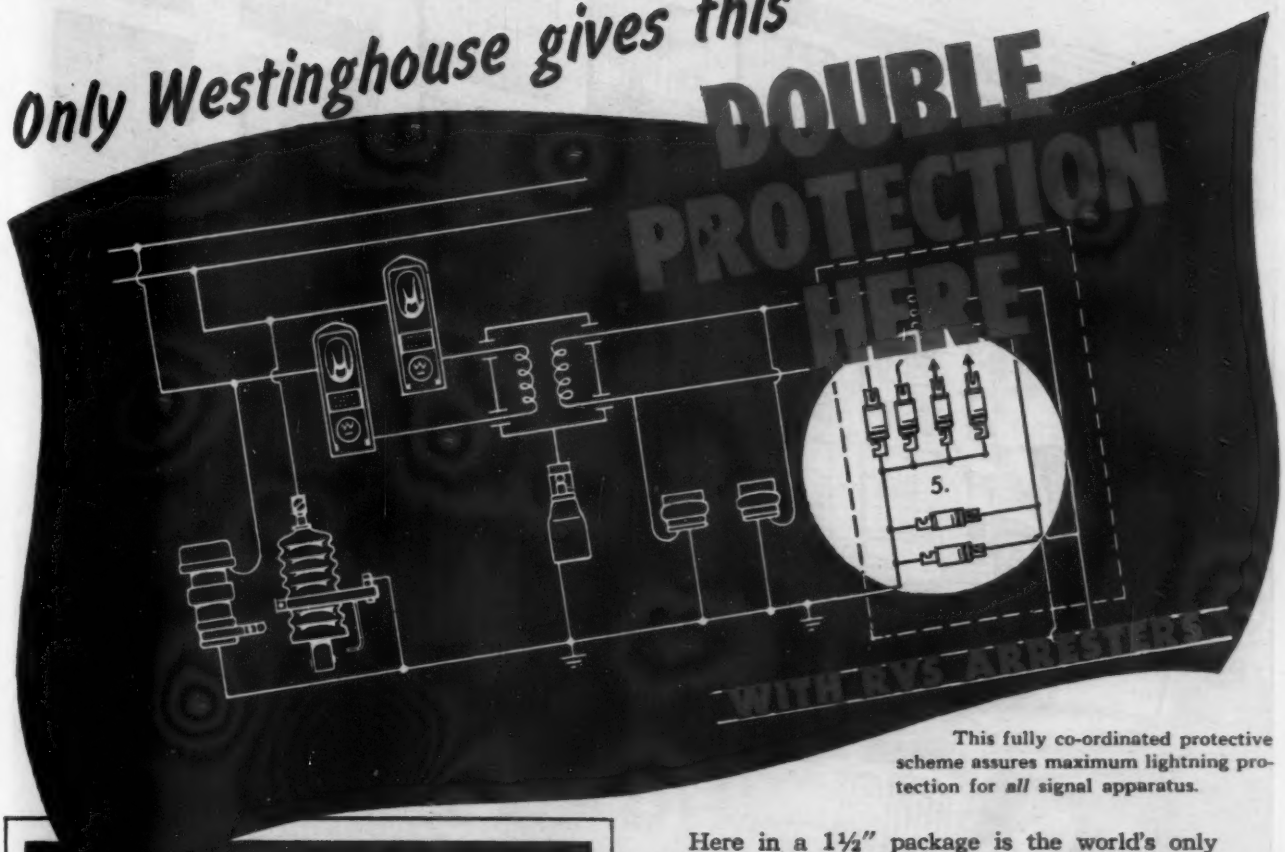
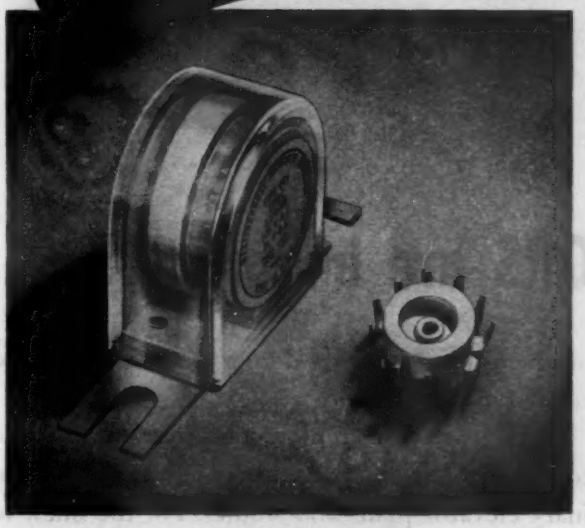
IN OVER 80 PRINCIPAL CITIES

Only Westinghouse gives this DOUBLE PROTECTION HERE



This fully co-ordinated protective scheme assures maximum lightning protection for *all* signal apparatus.



GET THIS EXCLUSIVE PROTECTION IN THE WESTINGHOUSE RVS ARRESTER

- high discharge capacity
- low IR drop
- ground-free gap design
- consistent low sparkover
- high 60-cycle breakdown
- positive interruption of power-follow currents
- complete visibility of arrester condition

Here in a 1½" package is the world's only double signal protection . . . the Westinghouse RVS Arrester, automatic watchdog for vital railroad signals.

This efficient arrester designed by Westinghouse is the only unit with the two-way protection of a current-limiting Autovalve block and a multiple spear gap in series. High surge currents are passed harmlessly to ground, and power-follow currents are snuffed out quickly.

The Autovalve block limits voltages to safe levels to protect equipment and guard signal reliability. Grounds on the signal circuit, which might cause false indication, are eliminated by the nonbridging, nonwelding multiple spear gap (illustrated at right of arrester). Even if a discharge beyond the arrester's rating damages the block so it cannot interrupt the power-follow current, current flowing through a spear of the gap melts it back, clearing the circuit. Subsequent discharges will pass the gap from another spear, thus providing continuing protection.

Back of the RVS Arrester is the research and development that have produced the complete Westinghouse line of lightning arresters for circuits ranging all the way from 75 to 287,000 volts. Your nearest Westinghouse office can give you all the facts. Ask for B-3362. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

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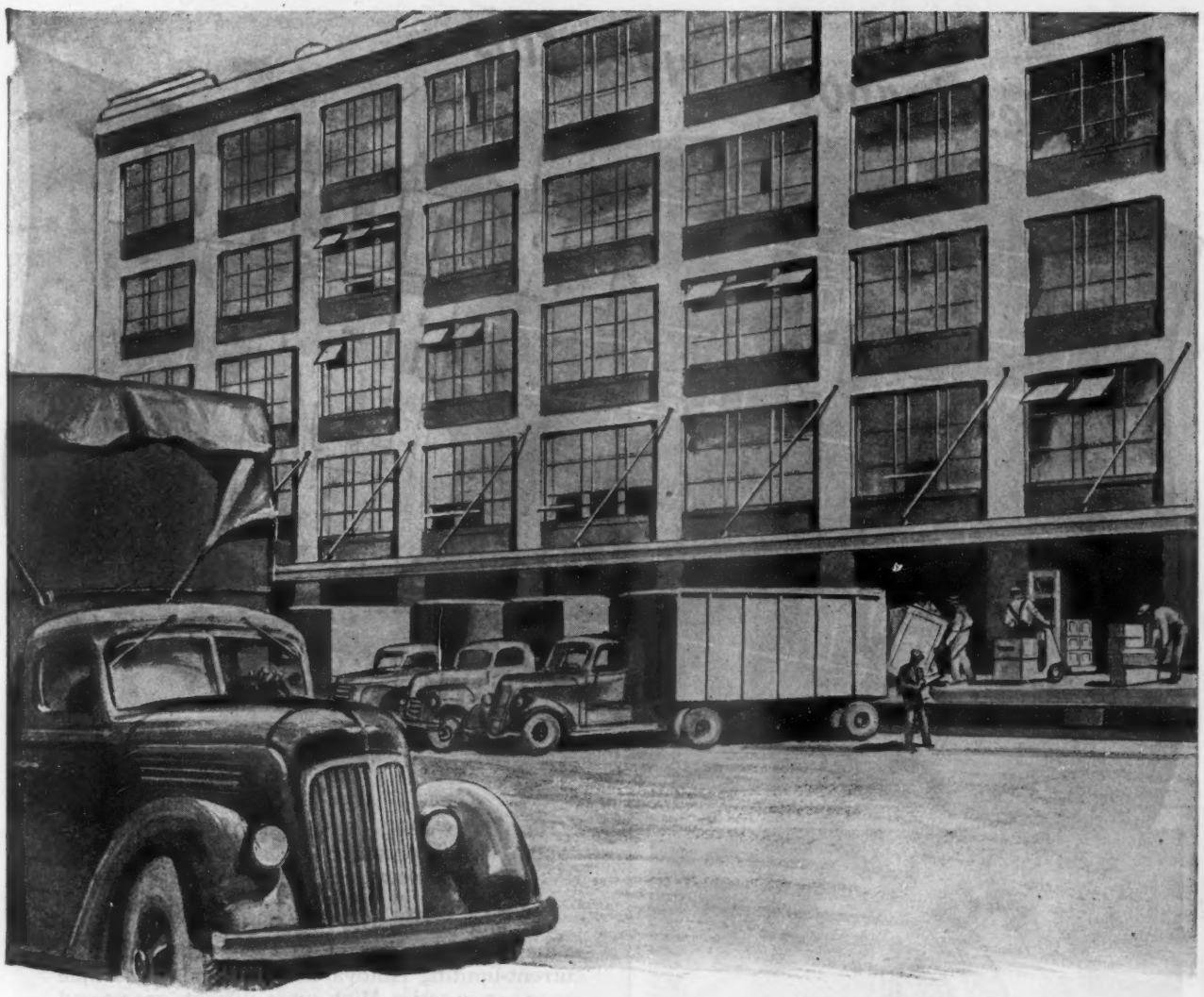
SIGNAL ARRESTERS



Why FREIGHT ELEVATORS are important!

BEHIND this busy scene, freight elevators are constantly on the job . . . keeping supplies and even the trucks themselves moving on schedule . . . without bottlenecks . . . without confusion.

For intensive service, the elevators should be high speed, automatic in operation and provided with power operated doors. Such equipment will compensate for some of the time lost in loading and unloading operations.

If conditions require, freight elevators can be dispatched to predetermined floors to suit any cycle of operation. Also, they do not necessarily require regular attendants.

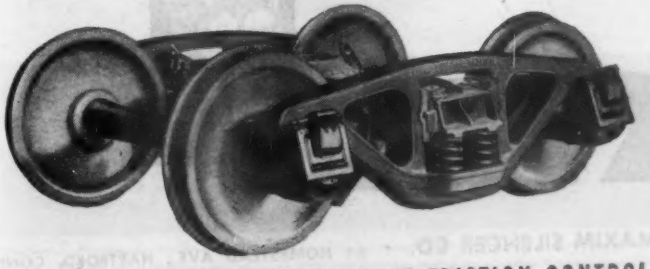
Your nearest Otis representative is now available to assist you and your Architect in making preliminary elevator plans and studies. For the finest in vertical transportation tomorrow, call your Otis representative TODAY!

Otis ELEVATOR COMPANY
OFFICES IN ALL PRINCIPAL CITIES

The A.S.F. Ride-Control Truck (A-3) provides an easy ride, is safe, requires minimum maintenance—and yet is within the cost and weight range of the conventional freight-car truck.

MINT-MARK OF ⬡ FINE CAST STEEL

A·S·F *Ride-Control* TRUCK



LONG SPRING TRAVEL · CONSTANT FRICTION CONTROL

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EXHAUST MANIFOLD AND *SILENCER* IN ONE UNIT

MAXIM exhaust manifold silencers provide an extremely practical space saving advantage because they replace the conventional exhaust manifold and at the same time act as effective silencers of Diesel exhaust noise.

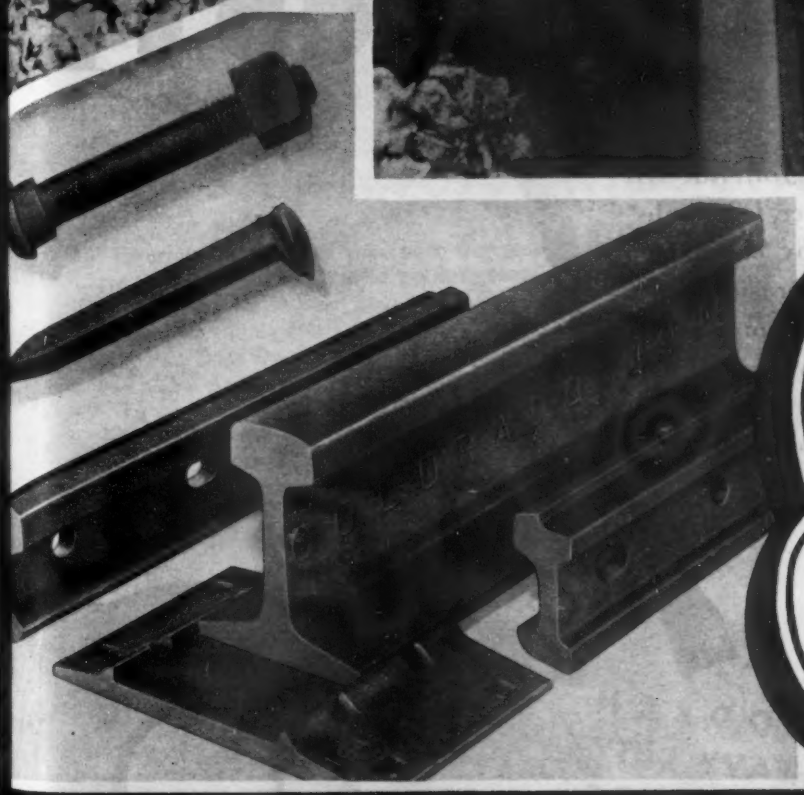
Maxim Silencers make it possible for switching and main line locomotives to use powerful Diesels quietly, a major consideration when yards and right of way are located within city limits and close to business or residential sections.

The conventional Maxim Silencers are also in wide use, often with the spark arrestor feature where operation is in a fire hazard area, such as in the case of refineries or ordnance plants.

Maxim also makes Heat Recovery Silencers, combining effective silencing and spark arresting, where necessary, with the production of hot water or steam for heating. Bulletin WH-101 describing Heat Recovery Silencers will be sent on request.

MAXIM

THE MAXIM SILENCER CO. • 64 HOMESTEAD AVE., HARTFORD, CONN.



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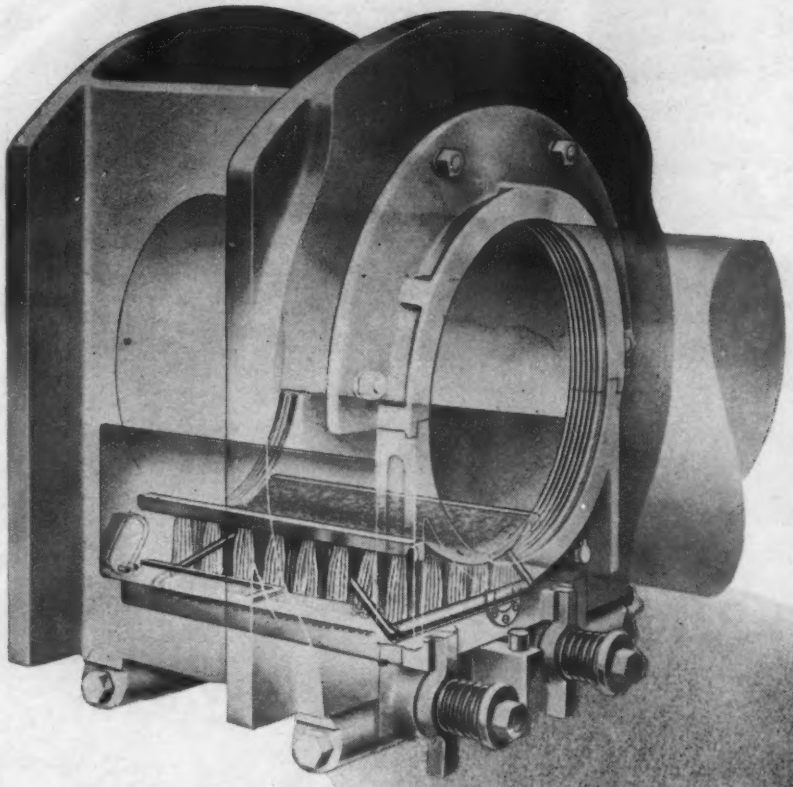


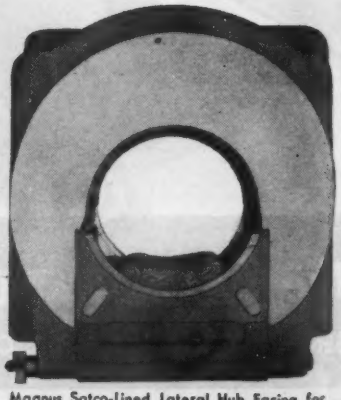
Clean Oil

Magnus Locomotive Journal Oil Lubricator acts as a filter. Oil climbs the absorbent wicking by capillary action, leaving dirt and abrasives in the bottom of the box. ¶ The compact lubricating pad, held snugly against the journal, assures a constant supply of clean oil. There are no waste grabs or lint wipers. Further details will be furnished on request.

SATCO Bearing Metal

MODERN HEAVY DUTY BEARINGS

MAGNUS METAL CORPORATION
CHICAGO NEW YORK



Magnus Satco-Lined Lateral Hub Facing for engine-truck, trailer and driving boxes.

NP END DOOR OPERATORS

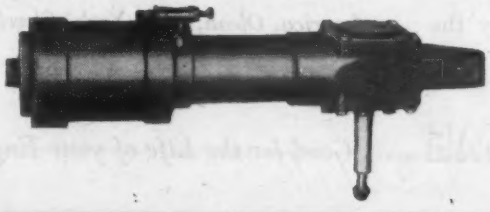
will make your luxurious post-war cars

. . . completely modern

THE luxurious interiors of your post-war passenger cars will be less appreciated if passengers have to struggle to get into them. Why ask them to do this? Why not *invite* them in — with self opening and self closing doors, actuated by N.P. End Door Operators.

The N.P. End Door Operator will effortlessly and quickly open the end doors of your cars and allow passengers to pass through the doorway without struggling with the door. To open a door equipped with this device, the passenger merely releases the door latch, when the End Door Operator instantly and effortlessly opens the door, and positively closes it behind him.

Air operated, safe, easy to install and maintain, the moderately priced N.P. End Door Operator is a modern convenience which will help popularize rail travel in the days ahead. Write for complete information.



NATIONAL PNEUMATIC COMPANY

New York — Rahway, New Jersey — Chicago

World's largest builders of power Door Control equipment

NP

Here a new science attacks an old problem

Cylinders in engines usually get a pretty raw deal. They have to take more grueling punishment than any other part of the engine. They . . . and the rings . . . bear the brunt of the blame when engines lose power.

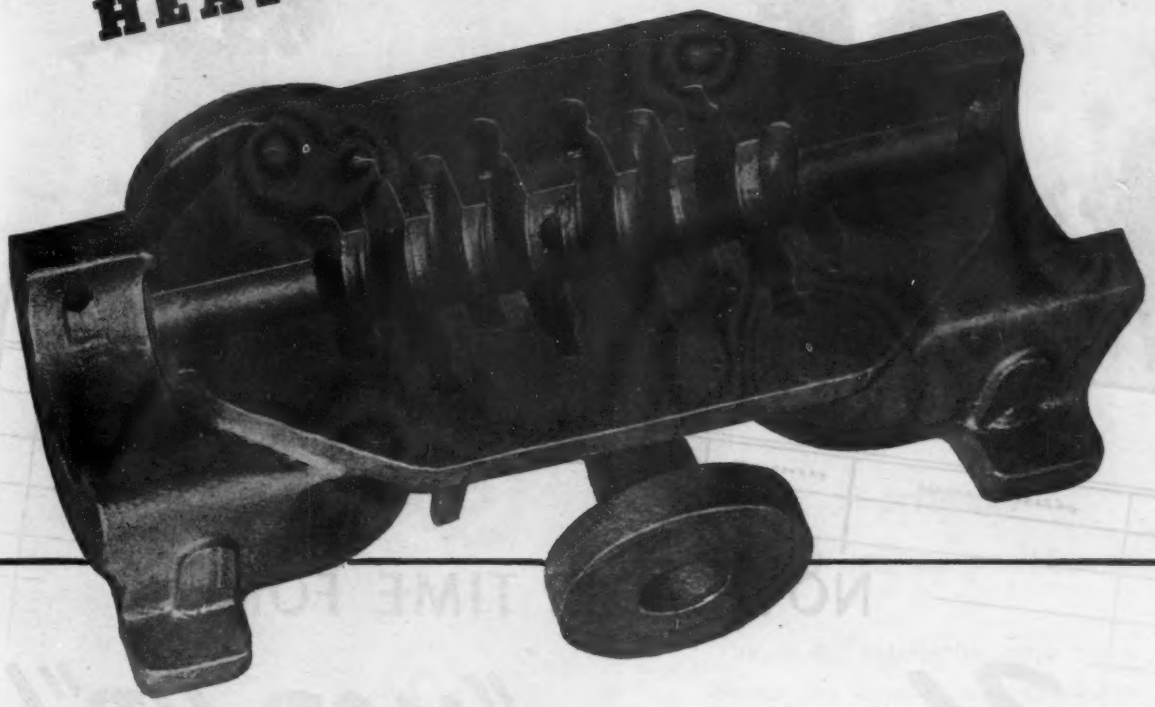
Here, in the Van der Horst Research and Engine Testing Laboratories, we are continuously attacking this old problem of wear. The new science of PORUS-KROME processing is attuned to the needs of the various types of engines. Tests are run in several types of engines to determine the degree and type of porosity which will give the maximum wear resistance. Every development or change in PORUS-KROME processing is forthwith scrutinized by the "Lord High Inspector" . . . *the engine.*

Let's work out *together* a square deal for *your* cylinders. Our engineers will gladly develop with your engineers the specifications which will multiply cylinder life 4 to 20 times . . . ring life 3 to 5 times. The entire facilities of these laboratories are committed to solving the problem of cylinder wear for engine manufacturers.

Even though building of engines for general use is still restricted, it is none too soon to plan for the use of PORUS-KROME in postwar engines. A request from you will bring complete information about PORUS-KROME. *Van der Horst Corporation of America, Olean, New York, Cleveland 11, O.*

PORUS - KROME . . . *Good for the Life of your Engines*

To stand up under HEAT - COLD - PRESSURE



If research and experience had not taught us to make complicated steel castings like pump casings, most pumps would be prohibitive in cost.

Pump casings must be rigid. They must keep their rigidity and their accurate dimensions under extremes of heat and cold and pressure. And they must be machinable.

Builders of pumps specify in advance exactly the combination of properties they need. And get them.

Your product may call for an entirely different set of properties. But whatever you need, steel castings can deliver—economically cast to shape, simple or complex.

Pumps or propellers, gears or grappling irons —large, small, light, heavy—steel casting research and technique are helping industry to turn out better, more useful products.

Your steel foundryman is ready to tell you about the versatility and the economy of cast steel parts. Consult him in your planning, or write to Steel Founders' Society, 920 Midland Bldg., Cleveland, Ohio.

MODERNIZE AND IMPROVE YOUR PRODUCT WITH

STEEL CASTINGS

PAYROLL SAVINGS PLAN

NOW'S THE TIME FOR *Your* BIG "MOP-UP"!

RE-SOLICITATION is the keynote for a victorious "mop up" in the Mighty 7th War Loan. Bond rallies plus continuous competition between departments help to keep Bond subscriptions on a quota-topping climb. Strategic poster displays . . . showings of "Mr. & Mrs. America," the Treasury film . . . distribution of the War Finance Booklet, "How To Get There," and the handy Bond-holding envelopes play an important part. But, above all else, arrange to have every employee asked *once more*—and personally urged *once more*—to meet his personal quota in the Mighty 7th!

The Payroll Savings Plan is the mainstay of every War Loan—meeting your plant quota is vital to the success of the 7th! Remember we have to make two drives in 1945 do the work of three last year. Put on an intensive "mop up" final to help mop up the Japs, cut the tentacles of inflation—and lay the foundation of security.

The Treasury Department acknowledges with appreciation the publication of this message by

RAILWAY AGE

★ *This is an official U. S. Treasury advertisement prepared under the auspices of Treasury Department and War Advertising Council* ★

Kathanode PLUS CAPACITY

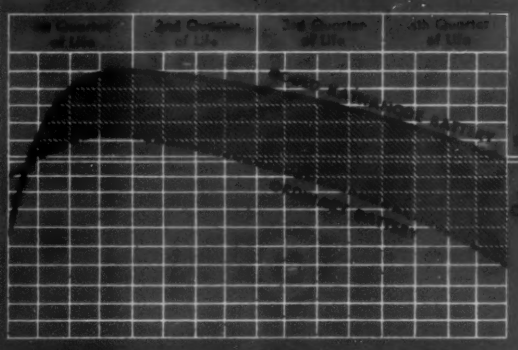
PAYS DIVIDENDS

in sustained brilliant lighting performance

The shaded area in the graph below shows the *excess capacity* of the Kathanode battery. From beginning to end of service life it is greater than that of ordinary batteries.

A minimum of 10% over its catalog rated capacity is available at all times in a Kathanode car lighting and air conditioning battery. This insures sustained brilliant lighting performance and full operation of air conditioning equipment even on the most severe train schedules.

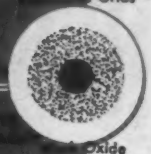
Write Dept. 146 for Catalog 800 on Gould Kathanode Glassklad Batteries for Carlighting and Air-Conditioning Services.



GOULD KATHANODE EXCEEDS RATED CAPACITY

KATHANODE FEATURES

Grids



Oxide

Mats

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GOULD STORAGE BATTERY CORPORATION, Depew, N. Y.

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June 23,

A WORLD premiere of "What's New in Coach Seating" will be held within the next few months when Heywood unveils its postwar seat designs. Heywood will show you *actual samples* of the designs scheduled for production the minute manufacturing restrictions are relaxed!

● Every design has been *thoroughly tested* . . . has been polished down to *engineering perfection.* Every design is *tops* in *comfort* based on a complete understanding of standard seat measurements through scientific research and years of practical experience. Every postwar coach seat design bears the Heywood *stamp of quality* backed by a reputation second to none in the industry!

HEYWOOD-WAKEFIELD
Established 1826 . . . Gardner, Massachusetts
TRANSPORTATION SEATING DIVISION

160 foot Bowstring Trusses with glued laminated top chords; bracing, end wall framing and door guides fabricated and erected by Timber Structures, Inc., for an army hangar.

Clear floor space is important

Wartime requirements of industrial speed and movement have emphasized the value of clear span construction to support the roofs of industrial structures so that full and unimpaired use of the floor space may be had.

Clear span roof construction has, we think, particular value for the engineer who is charged with design of railroad housing — roundhouses, Diesel sheds, warehouses, freight depots, recreation facilities, etc. — new types, sizes and lengths of motive power, new types of material handling, new methods of maintenance and repair — all these present problems which clear span roof trusses can help solve.

Timber Structures, Incorporated has helped apply timber trusses to many such problems and will welcome further opportunity to cooperate with those charged with responsibility of design and purchase.

Our experience and engineering staff are at your service—telephone, wire or write any of our offices—without obligation.

Engineering in Wood

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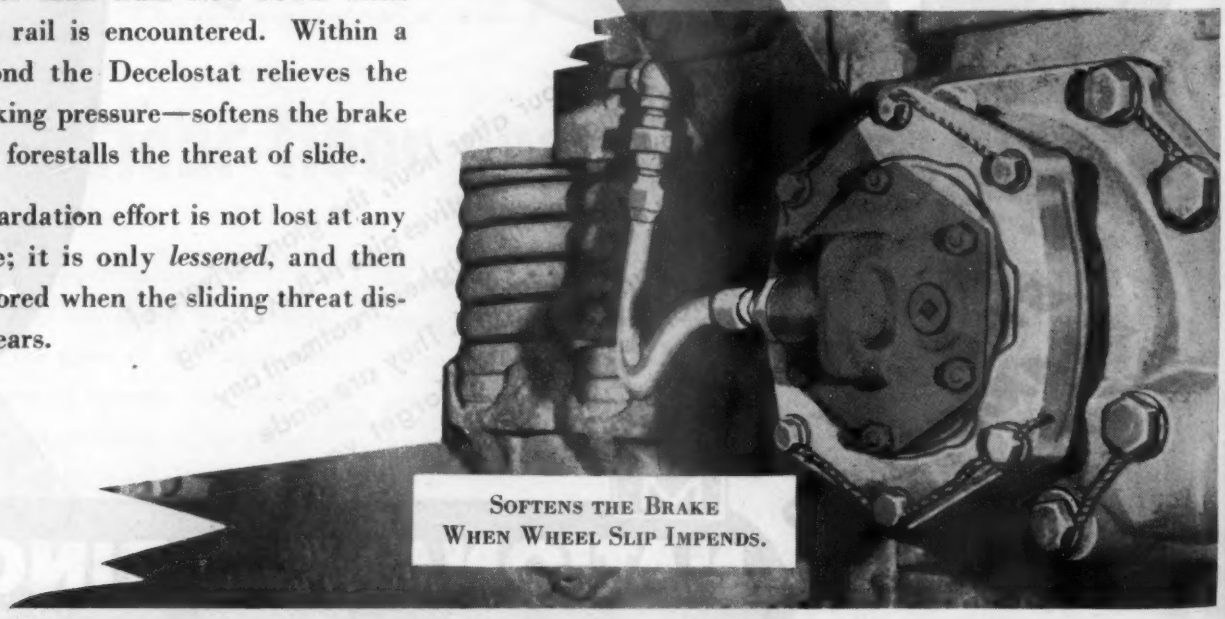
The "AP" DECELOSTAT

thinks and acts in less than . . . ONE SECOND

THE "AP" Decelostat keeps unending vigil on the wheels. When brakes are applied it registers the slightest retardation, holding a trigger finger on the rate of wheel slow-down.

It acts if wheel slow-down becomes faster than train slow-down when bad rail is encountered. Within a second the Decelostat relieves the braking pressure—softens the brake and forestalls the threat of slide.

Retardation effort is not lost at any time; it is only *lessened*, and then restored when the sliding threat disappears.



SOFTENS THE BRAKE
WHEN WHEEL SLIP IMPENDS.

Westinghouse Air Brake Company

Wilmerding, Pa.

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette, and the Railway Age-Gazette. Name registered in U. S. Patent Office.

Vol. 118 June 23, 1945 No. 25

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In This Issue

The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

★

PRINTED IN U. S. A.

The Week at a Glance

EVER-TIMELY ADVICE: As the anniversary of the birth of the late Commissioner Eastman nears, it seems fitting to print once again in these pages the twelve paragraphs epitomizing this distinguished public servant's matured philosophy of government regulation. Distilled from the experiences and tribulations of his richly instructive and productive career, catalyzed by his tested judgment and disciplined wisdom, and concentrated into a profoundly earnest and widely applicable dodecalogue of administrative fundamentals—his final pronouncement of salutary principles has earned studious consideration in high places, and bids fair to win even greater recognition with the passage of the years.

●

NOT ENOUGH CARS: The events of the next few weeks may show how wise or foolishly short-sighted the material allocators in Washington were, last year and the year before, when they failed to provide the steel and supplementary components needed to build freight cars for domestic railroads. Already rumblings are being heard from the Southwest, portending an advancing storm of complaints from farmers and grain dealers if the serious shortage of box cars that they expect actually develops. The A.A.R. Car Service Division, the O.D.T. and the I.C.C. may have need of storm cellars if some of the predictions from the grain states come true, but little or nothing has been said, apparently, about *why* there aren't more cars. The current situation is reviewed on page 1094.

●

DEMOUNTABLE BRIDGE: The light, cheap, and astonishingly maneuverable V-type demountable bridge which the military people have developed is described in an illustrated article on page 1091. As there pointed out, this bridge has definite advantages that will not escape the eyes of railroad engineering and maintenance men, particularly for emergency replacements of permanent structures destroyed by fire or flood. The practical utility of the device depends upon a patented gusset plate joint, while its remarkable characteristics reflect simplicity of construction, with only four main parts.

●

ANOTHER "CONSPIRACY": There are not a few people who fail to see eye to eye with Mr. Wendell Berge, and some of them are not under indictment in anti-trust cases, either—at least not yet. But these people will agree with his most ardent admirers upon one point, at any rate, and that is that the assistant attorney general in charge of the anti-trust division is an energetic and imaginative prosecutor. He appears to see a conspiracy behind every bush, and where he travels the shrubbery is in a flourishing state. As reported in the news pages, the manufacturers of railway steel springs, and their trade association, have this week joined the ranks of the "trusts" whose allegedly iniquitous practices Mr. Berge and his zealous assistants have set out to purify, even if the patient dies from the operation. Thus the spring manufacturers find themselves in the company of a good proportion of their railroad customers, even though some of the latter have attained this position in a somewhat left-handed fashion, so to speak, through the perseverance of Georgia's Governor Arnall (whom, incidentally, the Supreme Court has just told to give some particulars to back up his charges).

●

BIG C.T.C. JOB: An illustrated article on page 1108 describes the centralized traffic control installation on the 116-mile single-track main line subdivision of the Western Pacific which traverses the Feather River canyon in California's Sierra Nevada. With this carrier, like all the western roads, facing unprecedented demands upon its capacity as the vigor of our military effort in the Pacific grows, the time-saving, train-speeding potentialities of this improvement will be thoroughly exploited, it is safe to say. An interesting feature of the project is the equipment of maintainers' track cars with indicators, actuated by the coded track circuits, the purpose of which is to give crews on the line ample warning of the approach of a train.

●

PRODUCTIVE P.R. PROGRAM: The four-part, integrated, top-management-sponsored, unified public and employee relations program which President Mercier of the Southern Pacific and his staff have formulated and applied is outlined herein in some detail, particularly because it demonstrates the effectiveness and the simultaneously developed immediate and long-range institutional value of such an undertaking when the interest and appreciation and effort of responsible general officers are earnestly put behind it.

●

FREEDOM OF THE PRESS: Railroad employees have a legitimate and understandable interest in the trend of railroad earnings, because their job security and chances of promotion are obviously affected thereby. This would appear to be a good reason for "Labor" to keep its subscribers fully and accurately informed as to the financial position of their employers. Instead, as this week's leading editorial demonstrates, the brotherhoods' paper has elected to publicize only a part of the story, as when it leaves the uninformed but impressionable reader unaware of the fact that—even though net earnings this April were better than in April, 1944—the industry's net earnings in the first third of this year were below the same months last year, and in 1944 in turn were below the comparable 1943 period. By such devices as this studied selection of one unrepresentative month's earnings, then, this union publication has at least conveyed the implication that the present condition and future prospects of the railroad industry are much more favorable than they are considered to be by the informed investor, who has access to the complete statistics and expresses his convictions by the prices he offers for stocks. Where does this leave the employee who sincerely wants to know, for selfish but proper reasons, what his employer's financial prospects are?

COLLEGE MEN WANTED: It isn't just plain cussedness or lack of gumption that accounts for the relative failure of the railroads, as compared to other major industries, to obtain a substantial proportion of their new employees from the ranks of college-trained men, an editorial herein observes. But the fact remains that they do get fewer of these men who have, on the whole, the most favorable general background, the most thoroughly tested abilities to learn, and the best chances of developing into managerial material. In that fact is a challenge to the industry to strive more persistently to attract, and to make the most productive use of, this potentially most valuable personnel, for whom the railroads' need is certainly no less evident than that of their alert and resourceful competitors.

●

K.O. FOR TRAIN LIMIT: One of the brothers' pet peace-time make-work schemes—the arbitrary legislative limitation of the length of trains, both freight and passenger—took it on the chin from the Supreme Court this week, when the Arizona law was held to be an unconstitutional burden on interstate commerce. The court's opinion is summarized in the news pages, along with the arguments by which Justice Black endeavored without success to show that the whole purpose of the long, painful struggle to win free of this statutory hobble was nothing more than to save the railroads' money at the expense of their employees' lives and limbs.

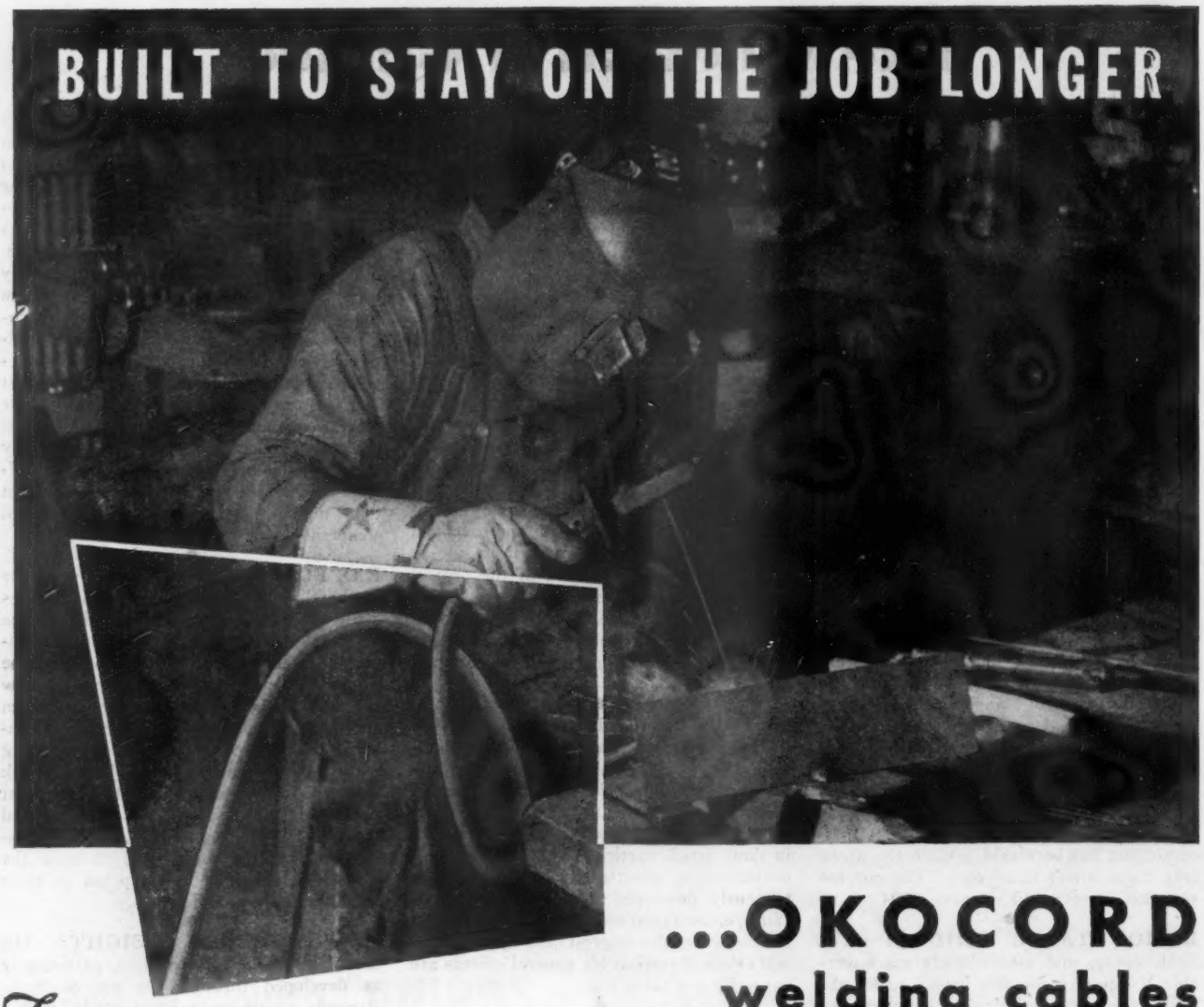
●

HOW TO LOSE WEIGHT: The economics of weight reduction, particularly as developed through the use of high-strength, corrosion-resistant steels, in the construction of freight cars is discussed further this week in the concluding part of an article by Frederick D. Foote, president of Alloys Development Corporation. As an editorial points out, the demonstrated advantages of materials that will bring about a more favorable ratio of pay load to gross load are bound to result in their more extensive use in the future. The discussion contains the suggestive comment, incidentally, that much of the old freight equipment now in service has undergone such thoroughgoing renewal treatments that little of the original cars remains except the numbers, the designs, and the dead load.

●

NEWS IN BRIEF: The Interstate Commerce Commission has prescribed drastic reductions in carload rates on fresh meats from the Midwest to the Pacific coast. . . . Roads in the East and the South have decided to comply with the commission's "uniform" class rate order. . . . M-K-T President Sloan died suddenly last week. . . . The Burlington has hired a chicken farm to protect its dining car requirements. . . . May's passenger revenues were about 6.5 per cent under last year. . . . Many railroads have gotten together (what will Mr. Berge say?) in a 500-coach pool for the transfer of returning veterans to and from Army "staging areas." . . . The "City of Denver" has celebrated its 10th birthday.

BUILT TO STAY ON THE JOB LONGER



...OKOCORD welding cables

For the many welding jobs in plant repair departments ... for steel fabrication and in construction work ... delivery of electrical power can be entrusted safely to Okocord Portable Cables.

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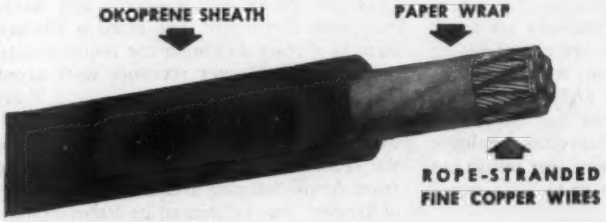

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**Method developed under wartime secrecy for the U. S. Navy*

OKOCORD ELECTRODE-HOLDER CABLE

Size A.W.G.	Number of Wires	Carrying Capacity Amperes	Volts drop 60° C. Copper Temp.
4	1078	100	3.18 per 100 ft.
3	1372	150	3.70 " " "
2	1715	200	3.92 " " "
1	2156	250	3.88 " " "
1/0	2695	300	3.72 " " "
2/0	3381	375	3.68 " " "
3/0	4263	450	3.51 " " "
4/0	5341	550	3.41 " " "

OKONITE OKONITE SINCE 1878

insulated wires and cables

4095

RAILWAY AGE

How Prosperous Are the Railroads?

If railroad employees, through their unions, are to act realistically in their own interest in their dealings with the railroads, they need to know the actual facts of the railroads' financial situation. The unions' paper, "Labor," in a recent issue published two prominently displayed reports tending to create an impression of railroad affluence. One of these reports was headed:

"Huge Rail Profits Are Reflected in Stock Leadership"

and went on to relate that "rail stocks continued to lead the market, reflecting the huge earnings of the carriers and Wall Street's confidence that they will remain high for some time to come."

Actually, railroad stocks have been selling at an average price of a little less than 60 on the Dow-Jones index, which is about 36 per cent of the average price, 166, recently attained by industrial stocks. Back in the dark days of 1933, railroad stocks sold at one time at 50 per cent of the price of industrials, and in 1929 railroad stocks averaged during the year well over 50 per cent of the industrials' average and, for a while, attained a ratio of more than 60 per cent of the average price of industrial stocks.

Efficiency FOR VICTORY

Financial writers for the daily papers have been writing with some optimism about railroad stock prices, which is justified if comparisons go back no further than the latter half of the 'Thirties. But the railroads at no time in the 'Thirties had available to them an adequate supply of new investment capital. The prices of railway stocks must go far above their present relationship to industrials before it can be said that the railroads are in a healthy financial condition; and, until railroad stocks rise from their present average price of 60 to over 100, it is obvious that the railroads will be in no position to raise large sums of equity capital necessary to the sound financing of widespread improvements to their properties.

A railway employee has a selfish interest in the adequacy of earnings of railway investors, and in a favorable price for railway securities, to the extent that these earnings and prices be sufficiently attractive to secure to the railroads all the new capital they need to keep the industry strong and growing in the face of competition—thereby making secure the employee's job, enlarging his chances of promotion, and safeguarding the solvency of pension funds. It certainly is not to the employee's interest that he be led to believe that the railways' standing with investors is already favorable and adequate to the railways' needs for capital, when, as a matter of fact, that position is as yet far from being attained.

The same issue of "Labor" which published the above-noted report on railway "stock leadership" also contained a "box" headed "R. R. Profits!" in which it was accurately stated that in April the railroads earned $54,300,000 after all charges "which is an increase of about 13 per cent compared with April, 1944." It was *not* reported, however, that, for the four months ended with April, the net earnings of the railroads were *below* those for the first four months of 1944, despite an increase of $24 million in operating revenues—nor was the reader reminded that net earnings for the first one-third of 1944 were substantially below those of the same period of 1943. Attention was drawn to the good news of temporarily increased earnings but important additional information was omitted which would have shown how relatively insignificant this one month's good news actually was.

Railway employees cannot be criticized for keeping a close watch on railway earnings with the purpose of turning this information to their advantage in any legitimate manner. But, in their own interest,

it certainly is desirable that such figures be given to them with a realistic statistical background, so that their behavior may accord with the actual facts of the railroads' situation and not with distorted conception of the magnitude of current railroad "prosperity"—which they will certainly acquire if they are given only fragments of good news about railroad earnings, separated from their context of other factors which remain unfavorable.

The Railroads' Interest In a Strong Air Force

The railroads would do well to take an active and constructive interest in the solution of the difficult problem of preserving in peace-time the nation's hard-won domination of the air. Aviation, of course, promises to become a serious competitor for much of the passenger traffic and possibly also the mail and express traffic now moving by rail. But that is commercial aviation, not military aviation; there is not nearly the community of interest between fighting by air and transporting goods and passengers by air that is often thoughtlessly assumed. As for military aviation, no other industry has a greater interest than the railroads in the further development and continued health of this branch of the nation's fighting forces—if for no other reason than the fact that, in an enemy air attack, the railroads would constitute one of the principal targets.

The preservation of this nation's military supremacy in the air will not be easy—because of the dilemma involved in the choice between keeping a large fleet of aircraft ready for instant service, on the one hand, and, on the other, seeing to it that the supply of planes embodies at all times all practicable improvements in design. In a field of technology which is advancing so rapidly, it will be difficult to maintain a large peace-time fleet of aircraft without including designs that are obsolescent.

A survey of the major questions involved in "Preserving American Air Power" has been presented in the Spring, 1945, issue of the "Harvard Business Review" in an article by L. L. Bollinger, Tom Lilley, and A. E. Lombard, Jr. This analysis appears to be complete in all essential respects except one, namely, that it does not consider what the effect of an air transport and manufacturing industry, if it is spoon-fed and hot-housed by a generous public treasury, might be on the continued efficient functioning of the nation's main reliance for heavy industrial transportation, viz., the railroads.

The authors do, however, recognize this problem in the abstract when they draw attention to France in the period following World War I, when that nation "maintained the largest air force in the world" and otherwise made a great outward show of military strength—only to crumble at the first onslaught of the enemy because the economy necessary to support such a military force had been permitted to decay.

No nation in the world has greater need than the United States for a strong, economical, dependable system of interior transportation. Compared to this country, every European nation is a short-haul area, which could make some kind of a showing at industrial production with only truck or inland waterway transportation—because no finished product at the point of use of any of those countries has in its composition so many ton-miles as an equivalent American product. The top officers of the Army Air Force appear to appreciate this fact—as witness the strong statement of General Arnold on the dependence of the Air Force upon railway transportation at the time of the threatened railway strike at the end of 1943 (see *Railway Age*, January 8, 1944, page 154).

It would be in their own and the nation's interest if the railroads should reciprocate General Arnold's understanding of the Air Force's need for efficient railway service by evidencing a lively and helpful parallel interest in the Air Force and its problems—and that they be not discouraged in their sympathetic approach to military aviation because the self-seeking monopolists of the air transport lanes have so far thwarted their efforts to play a constructive part in the development of civil air transport. It is obvious that commercial air transportation is going to try to divert to itself some of the glory and public support rightly belonging to the Air Force; and is laying claim to heavy subsidies on the allegation that federal aid to civil air transport is necessary in the interest of national defense.

The fact is that military aviation is a far different business from commercial air transport. The planes are different and the type of skill and training demanded of pilots is different. A reasonable development of commercial aviation, in keeping with the true economic demand for the service, is, of course, desirable—but it certainly would be no assistance to the Air Force to see commercial aviation exploited at the price of deterioration in the railroad industry. The effective way for the government to support the Air Force is to make adequate appropriations directly to the Air Force, and not to dissipate the taxpayers' money by doing the appropriating for commercial aviation in the expectation or pretense that some of the benefit therefrom may ultimately trickle through to the Air Force.

Disabled Veterans

Industry is facing the problem of utilizing disabled veterans on a large scale and in fulfilling its obligations in the total rehabilitation program. Many employers have been dismayed at the prospect, because they have had little or no experience in dealing with the physically handicapped. On the other hand, there are a number of industrial concerns which for years have made it a practice to employ the handicapped and have developed techniques which are proving wholly satisfactory. The problem has been to assemble this information and make it generally available in a simple and easily understandable form.

Fortunately, the Center for Safety Education, New York University, has been interested in the study of industrial rehabilitation, and the American Museum of Safety, sensing the importance and possibilities of research in this field, arranged to co-operate with it by providing for an Arthur Williams Memorial Fellowship study, with the understanding that the results would be made available as promptly as possible. The report is now completed, in the form of a 96-page Safety Train-

ing Digest in Industrial Rehabilitation.* It includes a foreword by Brig Gen. Frank T. Hines, Administrator of Veterans' Affairs, a review of the rehabilitation practices in 25 selected industries by John V. Grimaldi, the holder of the fellowship, and the highlighting of the best practices by means of a series of articles by representatives of the industries concerned. Mr. Grimaldi also summarizes the prime considerations for an industrial rehabilitation program.

One of Mr. Grimaldi's findings was that "when the capacities of the disabled individual are properly matched with the job, the disability ceases to be a handicap." Indeed, he reports that in this respect "each company was definite that the safety, reliability and productivity of the disabled were equal, or superior to the able-bodied." It has been rather clearly established, by studies that have been made, that the handicapped, in general, make a better record as to absenteeism, labor turnover or accident rate than do the employees that are not so handicapped. It is surprising to note the large number of blind people who are being employed in a productive capacity in industry, and this applies also to other workers who are physically handicapped seriously in various respects. Because there is much misunderstanding about this whole problem of dealing with the physically handicapped; and because some employers face it with uncertainty and misgivings, this report or digest of experiences and practices is of special value at this time, when disabled veterans are being returned to their homes.

So much is being said about neuropsychiatrics that this comment of Mr. Grimaldi is noteworthy: "The neuropsychiatric veteran is the same boy who went away to join the armed forces. . . . It is only the exigencies of his new life that accentuate a condition that had been more or less under control. When he is returned to his former environment, the exaggerated manifestations of his functional mental-neurological disorder will probably subside." Elsewhere in the digest Col. William C. Menninger, director of the Neuropsychiatric Division of the Office of the Surgeon General of the War Department, is quoted thus: "Even men in high government positions are reported as having stated that they did not want to employ a 'psychoneurotic.' Such individuals need to be educated to the fact that the great majority of these men so discharged are not incapacitated. None is psychotic and very few are any less capable of holding jobs than before they went into the armed forces."

* Copies may be purchased from the Center for Safety Education, New York University, 8 Fifth Avenue, New York 11, N. Y.

Holding the Line

Not all of the heroes in this war are overseas; moreover, many of them are far beyond the age when they could be accepted by the armed forces, or even under normal conditions be retained in civil employment. The Railroad Y. M. C. A., which has been called upon to greatly increase its services to railroad workers who are doing such a stupendous job in maintaining a record-breaking freight and passenger traffic, has been hard hit by both manpower and material shortages and by the overcrowding of its facilities. Its difficulties and the struggle to overcome them are illustrated by the following incidents noted during the month of April.

The increased traffic on the western railroads is being reflected in the overcrowding of the Associations. The most critical situation in the western field, however, is at Horace, Kansas, where during one of the worst blizzards of the year the furnace broke down and the city lights and water were cut off. J. W. Heath, a retired Y. M. C. A. secretary from Minturn, Colo., on April 1 stepped into a vacancy at Horace and for two weeks worked 20 hours a day. When relieved by F. C. Lark, who was also retired many years ago, Mr. Heath was completely worn out. Mr. Lark, although not in good health, is making a desperate attempt to keep this Association open.

Up in New England, in East Deerfield, Mass., the secretary was called into military service. It was impossible to secure a man to replace him and the wife of a local bank officer stepped into the breach and operated the Association effectively for several weeks.

These are typical of the way in which some of the emergencies are being met, as the pressure increases and women and retired secretaries are forced to come to the rescue to keep the service going.

The Burden of Dead Weight

The article on high-strength steels which began on page 1056 of the June 16 issue and is completed this week is a timely review of the knowledge pertinent to the use of these materials which has been accumulated in approximately 10 years of service experience.

The major objective in the use of these materials is weight saving and much of the discussion—in which there has been wide divergence of opinion—has centered on the economics of weight reduction. It is a significant fact that, despite the unresolved status of the weight question, high-strength steels have been utilized in the construction of so large a percentage of the freight cars built since they became available. Over 40,000 such cars—nearly 25 per cent of the railway-owned cars installed—were built during the first five years after the introduction of the materials. These cars are owned by more than 40 railroads of all classes. This early acceptance suggests the possibility of an even more extensive utilization of the high-strength steels now that they are again available, even without a satisfactory theoretical answer to the economics question.

For more than 20 years the trend in the weight of freight cars has been steadily upward. Notwithstanding the heavy increase in the average car load which has been effected during the war years, the ratio of pay load to gross load in loaded freight cars averaged less in 1944 than in 1920. In 1920 the average weight per freight car was 20.1 tons and the net tons per loaded car 29.3. In 1944 the average car weight had increased to 23.5 tons and the net tons per loaded car to 32.7. In 1920 average pay load was 59.6 per cent of gross load; in 1944 it was 58.2.

It is inconceivable that this long-time steady increase in the burden of weight to be moved by the railroads will not be reduced now that materials of construction are available with which to accomplish that purpose.

What Use Do Railroads Have for "College Men"?

One of the perennial questions for discussion among railroad men of an idealistic and social turn of mind has been the position of the "college man" on the railroad. The prevailing opinion among these well-intentioned and thoughtful observers is that railroad managements, generally speaking, are backward in their appreciation of the qualities which employees with college educations could bring to the railroads; and are less vigorous than other large businesses in recruiting the more desirable graduates of institutions of higher learning.

The situation of the railroads in relation to "college men" is more complex than that of other large industries, and this complexity has been compounded by a confusion in terms. To most large industries, "college man" connotes a man who has undergone just one of the many varieties of training comprehended by the term "college education"; and attainment of a consistent policy toward recruiting persons in such a narrow category is a relatively simple problem. For instance, if the company manufactures elaborate machinery or electrical equipment it will need a large and constant influx of college-trained mechanical or electrical engineers, because its operations require a certain number of employees with a specific educational equipment which most technical schools provide in quantity but which no specialized mechanic can ever learn at his bench.

Employing such people each year in considerable numbers, the industry has learned by experience what it can and cannot expect of them; what further on-the-job training they need; and, since such recruits are constantly required on a relatively large scale, circumstances quickly and easily suggest aggressive recruiting techniques to pick the best qualified candidates from the available crop. It is not, therefore, necessarily superior wisdom and foresight but a fundamental difference in circumstances which has enabled most big corporations to develop effective programs for recruitment of "college men" more readily than the railroads have been able to do.

The problem of a big railroad in attracting to its service employees who have undergone the discipline of college education is not similar to that of a big industrial corporation, but in some respects resembles that of a dozen corporations combined, each of them being in a different line of business. There is not any one policy toward recruiting and training "college men" which will fit all railroad departments—and the necessity of formulating so many different policies has, apparently, been of sufficient magnitude to discourage many managements from arriving at any policy at all. The task in this respect of a large manufacturing industry whose operations require hundreds of men trained in some technological specialty to supervise the operations of thousands of hands engaged in standardized repetitive operations is a much simpler one. Such an industry *has* to have the technical school graduates and, out of large experience in hiring such men in wholesale quantity, it has evolved a successful technique for doing so.

It is also true, because railroad work is too variegated to afford openings for large numbers of men with any one specific variety of technical training, that educational institutions have not found an effective demand for many courses aimed specifically at railroad work, as has been possible in providing acceptable recruits for some other industries. The result is that on a railroad a man without advanced education but with much "practical" experience often appears, in superficial judgment, better qualified for a position leading to further promotion than does a formally educated entrant, full of good habits of study and wholesome curiosity but needing considerable training in railroad work before his services have much economic value. The temptation in such cases is to let the choice fall to the man who will give a better performance at the outset, without the forethought to consider that the man with less "practical" experience may in the long run be a far more effective producer.

This unwillingness to wait for the man of exceptional educational qualifications to acquire sufficient experience to enable him to surpass—as he surely will in many cases—the man of wholly "practical" background is especially noteworthy with respect to graduates of business and academic courses of collegiate rank. Railroad arrangements to recruit engineers are meager in comparison with the programs of most other industries, but systematic railroad recruitment plans for non-engineering graduates are so few as to border on non-existence. The accounting and traffic departments, particularly, could surely make profitable use of a far larger proportion of men with formal education in academic and business courses than they now employ. If such education is helpful, as experience of other industries has proved it to be, in selling oil, insurance, real estate, and advertising, it surely would be helpful also in selling transportation.

There is a tendency, whenever some unfavorable comparison is made between the railroads and other industry, to explain the difference by imputing a peculiar backwardness or perversity to the railroads. Careful search will usually disclose that the culprits are circumstances rather than persons. Nevertheless, the discrepancy remains between the educational standards required by the railroads and those of most other large industries for employees who may qualify for managerial positions. As long as the railroads are hiring people anyway, it is greatly to their detriment competitively that they should accept a larger ratio of persons with limited educational qualifications than other industry.

The failure of the railroads to recruit, proportionately, a larger ratio of their employees—especially those destined for future positions in management—from those with the best preliminary training, can, thus, be explained in other and more accurate terms than the customary charge of railroad waywardness. But the existence of this handicap of circumstances does not eliminate the railways' relative need for the best-qualified personnel available. That their problem in this regard is more difficult than that of other industry only signifies that the effort they need to put forth to attract, select, train and promote this class of personnel should be correspondingly greater than that evidenced by other industry. Actually, their concern over this important matter appears to be considerably less than is observable elsewhere—which is not a wholesome symptom, considering the railroads' competitive position.

A V-Type Through Bridge Carrying a Heavy Locomotive

Demountable V-Type Railroad Bridge

New type structure, designed primarily for emergency or temporary work, offers a number of advantages, with speed of erection an outstanding feature

By T. JANISZEWSKI, C. E.

Fort Pitt Bridge Works, Pittsburgh, Pa.

THE demountable V-type bridge, developed primarily as an emergency railroad structure for use in military theaters, is much lighter, cheaper and easier to erect than the usual standard type truss bridge, and offers possibilities for use around the world, particularly in war-torn countries where there has been widespread destruction of railroads. At the same time it can be used to advantage for the speedy replacement of railroad structures anywhere destroyed by tornadoes or floods, and also as a temporary structure for effecting detours during the erection of permanent bridges. After serving its purpose, it can be dismantled easily and stored until new circumstances arise requiring its reuse. In many cases, due to its design, this type bridge can also serve as a permanent structure, by simply replacing its connection bolts with rivets.

The demountable V-type railway bridge can be built as a deck or through structure of any span length from 30 to 90 ft., in multiples of 10 ft. The through bridge, due to its shallow floor, has a special advantage in spanning obstacles with fixed clearances, such as canals and railroad or highway crossings. For highway purposes, the V-type bridge can be used as a deck structure up to 180 ft. in length, in the same 10-ft. multiples. If a two-lane width is required, two deck bridges can be built side by side and bolted together into one, increasing considerably the lateral stability of longer spans.

Construction

The deck bridge has a triangular V-shape cross section, with two upper chords and one lower chord, connected by webs of the Warren type, eliminating entirely any wind bracing in the lower chord. The floor system is constructed of separate floorbeams and stringers, precluding bending of the truss chords, and a 6-ft. spacing between stringers permits the use of standard railroad ties for supporting the track rails. The flared positions of the side trusses permit the use of the same floor system in both types of V-bridges, the deck bridge being converted into a through structure by simply dropping the entire floor from the upper chords to a position between the split-in-half lower chord of the deck-type bridge.

In the latter case, the upper chords have no wind bracing, but with the same degree of flare as in the case of the deck span, they produce a compact structure with adequate horizontal clearance for railway traffic. In both cases a considerable reduction in the weight of the bridge is obtained.

The simplicity of construction of the

A 70-Ft. V-Type Deck Bridge Under Load

demountable V-type bridge is made possible because of the fact that throughout the structure there are only four main parts, namely; (1) the gusset plate joint, (2) the angle member, (3) the floorbeam, and (4) the stringer. From these four main standard parts any required type of span is bolted up by one type of standard bolts, ⅞-in. in diameter.

The practical realization of the main idea in this design was effected by development of the patented gusset plate joint employed, which is a welded assembly of plates so constructed that there are no fillet welds which work alone under tension in the main lines of forces. The welding is used only to stiffen the joint. The joint provides for good connections to both legs of each angle member and an adequate number of bolts (minimum of 3) in each leg permits good distribution of forces.

The length and spacing of all angles employed in the chords, web members and wind bracing are the same. Chord and web members throughout the entire structure are combinations of standard 4-in. by 4-in. by ⅜-in. angles and batten plates, the latter of which can be arranged differently to meet different conditions. A predetermined number of holes is drilled in each leg of the angles for this purpose. To meet different span lengths, the panel length of 10 ft. is selected as standard. In special cases, where a multiple of 5 ft. or a skew bridge is required, the use of shorter angles in the last panel solves the problem.

The floorbeams and the stringers are the same for both the deck and the through bridges. The floorbeams, made from wide-flange sections (14WF), have reinforced ends to take care of heavy shear in these parts of the beams. In the through bridge, to prevent tension forces in bolts connecting joints and floorbeams, an additional small bracket plate is added. The stringers, made from wide-flange beams (16WF), also have welded side plates, so spaced that the standard angle can be used for wind bracing.

The deck V-type bridge is supported at the upper chords; the through V-type bridge at the lower chords, and in both cases shoes, with corresponding connections, are bolted directly to the joint above the bearing plates.

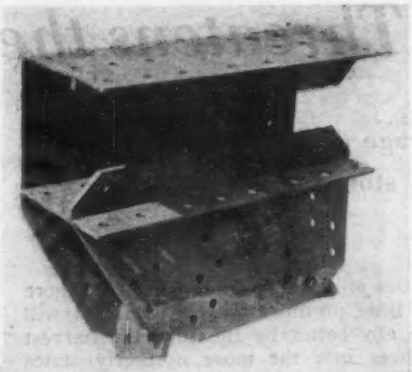
Material and Stresses

In the interest of ready availability of the material involved, ordinary bridge steel, with an ultimate strength of 60,000 lb. per sq. in., was chosen for the bridge. The same reason determined the other basic elements, such as the 4-in. by 4-in. by ⅜-in. angles and the ⅞-in. bolts. The matter of protection against damage or destruction by improper handling, which is of the utmost importance in a structure of this character, since emergency conditions do not permit care in the handling of the material, was also solved in the design.

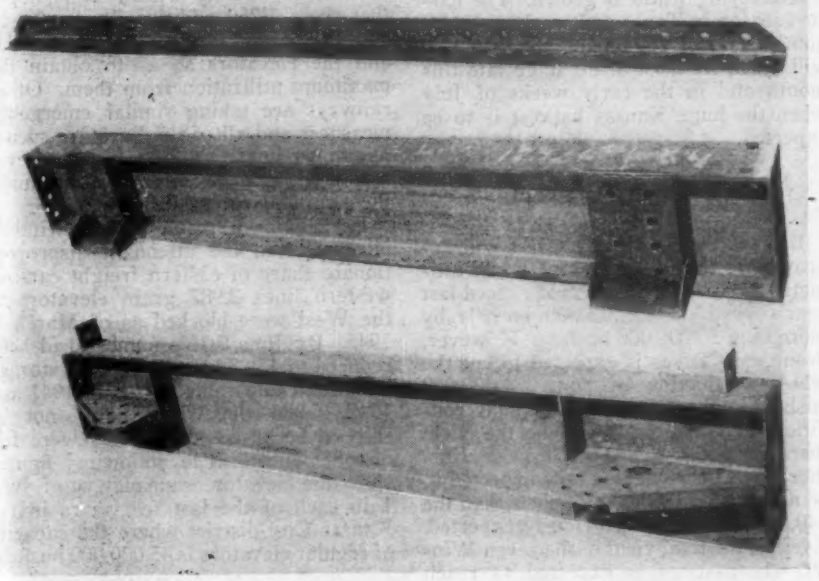
The bridge as a whole is designed for railroad Cooper's E-40 loading and a basic allowable unit stress of 27,000 lb. per sq. in. with the limitation that the elastic limit of the material will not be surpassed under any conditions. The higher than normal basic unit stress used

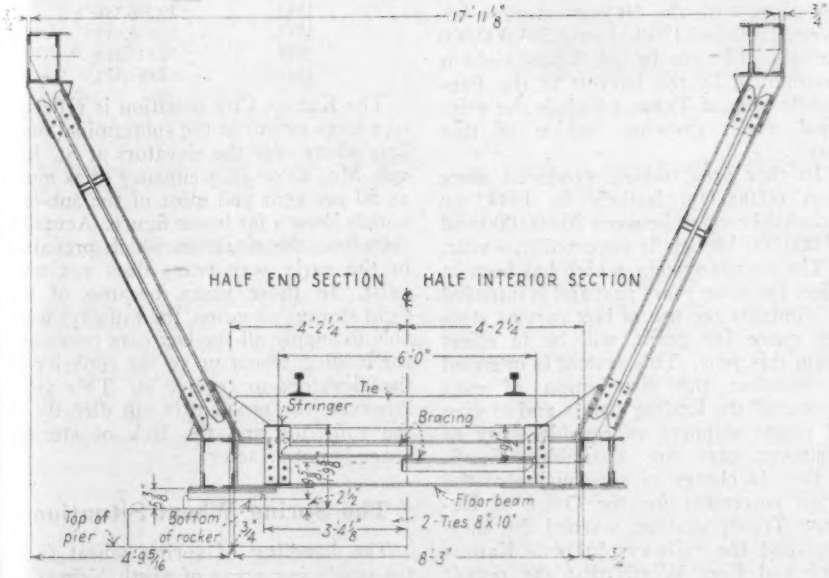
End View of a V-Type Deck Bridge During Launching Operations

in the design is said to be justified first, by the temporary nature of the bridge, and second, by favorable tests on the actual bridge of fatigue effects, impact, secondary stresses and other factors which have an influence on magnitude of stresses.



Right—One of the Patented Gusset Plate Joints—Below, Top to Bottom, Standard Angle Floor Beam and Stringer





Half End and Interior Section of the Demountable V-Type Through Bridge

All of these various design factors combine to reduce the weight of the bridge, which is rather light in comparison with the weight of similar demountable bridges, being only 680 to 780 lb. per lin. ft., depending upon the length of span. This difference in weight is especially great in the through-type bridge, where the flare position of the trusses is of special advantage.

The ease of handling and erection, even under the most unfavorable emergency conditions, is one of the major advantages found in the demountable V-type bridge. If necessary, it can be erected by any labor available, without any erecting equipment other than wrenches, pins and hammers. Giving consideration to the fact that ease of handling is determined principally by the weight of separate members, the weight of the heaviest members of the bridge, the stringers, does not exceed 400 lb., and they are long enough to permit the proper distribution of men to handle them easily. The main members of the trusses, principally angles, weigh about 100 lb. each. This permits carrying the bridge material to sites readily, even on mules or small boats.

The V-type bridge can be erected in many ways, depending upon local conditions. The easiest and recommended method is to erect the bridge at the actual place of crossing on light scaffolding, with bolted connections throughout. Two men can work on each bridge member without interference, which permits bolting the connections simultaneously, thus shortening considerably the time of erection.

Under conditions too difficult to permit the use of scaffolding or falsework, the entire bridge, previously assembled, due to its light weight can be launched in cantilever position from the near-side abutment, employing any railroad car. If a specially developed launching crane car is used it will shorten the erection time to less than two hours. In cantilever position, the bridge can be used effectively in making repairs to damaged far-side supports. If erecting cranes are to be used, demountable V-type spans of the deck type can be shipped to the site wholly assembled as the dimensions permit loading within the limits of railroad clearances, or they can be assembled on the bank and lifted into position.

RETURNED RAILROADERS. — More than 1,600 Canadian National employees have reported back to work following discharge from the armed forces. But, as R. C. Vaughan, C. N. R. president has pointed out, this represents only about 8 per cent of the employees who were granted a leave of absence to enter the service. "It is obvious," he said, "that the satisfactory reestablishment of those who wish to return to the railway will demand our best attention for a long time to come."

IN YOUR HANDS lies part of the solution to a No. 1 war material shortage. Yes . . . *paper!* Thousands of tons of paper are going to the Pacific war as packaging for the thousands of items our fighters need. *And that war paper won't come back*– With so many lumberjacks in the army and pulpwood supplies critically short, there's only one other place where Uncle Sam can look for the paper to make or wrap over 700,000 war items. That's to *you*. So here's what you can do to help.

—Pass this magazine along to your friends. Put a note on it . . LAST READER TURN IN FOR PAPER SALVAGE, unless it is to be preserved for reference.
—Dig out those piles of old magazines in your attic, cellar or storage room. Bundle up every one you can for the next collection.

It's in your hands!

Car Shortage Threatens the Wheat Belt

As against normal storage of 20,000 to 25,000 cars none are stored this year

RECENT meetings of the Trans-Missouri-Kansas and the Southwestern shippers' advisory boards in Kansas City and Fort Worth respectively to consider the grain situation brought out the danger of a serious car shortage forcibly. In ordinary times, between 20,000 and 25,000 cars suitable for grain loading are stored in strategic points in the field prior to the grain harvest and after they are loaded are kept in shuttle service between the wheat fields and the country elevators or terminal markets. Even last year, despite heavy demands for box cars, some 14,000 cars were stored and available for moving the grain harvest.

Pursuant to an order issued by the Car Service division of the A. A. R., effective February 26, the eastern and southeastern roads have been moving empty through the Chicago and St. Louis gateways a large number of box cars intended to restore the unfavorable balance of cars on line to cars owned which existed on the western railways, largely as a result of the partial paralysis of car movement following the severe winter storms in the Northeast in January and February. The movement of empty cars returned to the western lines in this manner has at times averaged close to 2,000 cars per day and for many weeks the average was well over 1,000 cars per day. In all 163,000 empty box cars were delivered to western railroads from February 19 to June 8.

Cars in Continuous Use

However, as soon as these cars arrived in the western territory they were put into immediate use loading wheat for export under the Army program. Even though the grain ships were ordered to receive their loads of wheat at the Gulf ports in order to shorten the haul and speed the turn around of vitally necessary cars, the magnitude of the movement of last year's crop was of such an extent that, coupled with the general demand for box cars for loading of military freight, all cars sent to the western roads have been in continuous service and it has been impossible to store any of them in the wheat growing territory.

For example, in the first five months of 1945, the railroads handled 1,018,300 cars of grain and grain products as compared with 1,008,246 cars in the same period last year, the latter figure having been an all-time record until it was exceeded this year. This fact, coupled with the prospects of a harvest of unusual proportions, renders the situation as to box cars extremely grave in the states producing winter wheat and there is little promise that the situation will be any better by the time the harvest moves into the more northerly states where spring wheat is grown. The harvest season in Texas and southern Oklahoma has just begun and the situation will reach its most acute stage late this month and in the early weeks of July when the huge Kansas harvest is to be expected.

The Crop Prospects

In general the wheat harvest will approximate that of last year. Early estimates indicated that it would exceed last year's yield of 430,715,000 bushels by more than 50,000,000 bushels. However, drought in Texas is expected to cut the wheat production by some 35,000,000 bushels in that state and a similar condition in Oklahoma will cut the yield there by about 8,000,000 bushels. Further the Kansas yield is now expected to be nearer to 200,000,000 bushels than the 240,000,000 bushels previously expected. Even so the total yield in the seven Winter wheat states is expected to reach 421,000,000 bushels, which will be the largest crop of any year except 1944 and compares with the 10-year average between 1930 and 1939 of only 291,000,000 bushels. The cut in the Texas yield is exemplified by the harvest in the Panhandle area of Texas which is the principal wheat growing section of that state.

In this area, which produced more than 60,000,000 bushels in 1944, an estimated crop of between 20,000,000 and 25,000,000 bushels is expected this year.

The permit system, which has been in effect for some years past and is intended to eliminate the use of box cars as storage space for grain, will be in effect again this year. This system is intended to equalize the distribution of cars among all the loading points and to give all wheat shippers an equable share of whatever cars are available. F. S. Keiser, in charge of supervision of the grain movement for the Office of Defense Transportation, warned the shippers and the railways in both Kansas City and Fort Worth that the permit system would be far more rigidly policed and supervised this year than it was last when large banks of cars were permitted to accumulate at Fort Worth, Texas, and Enid, Okla., to the detriment of other areas so far as car supply was concerned. Mr. Keiser explained the purposes of O. D. T. Order 304 as, first, to keep cars in the territory and, second, to prevent the use of cars in shifting wheat from elevator to elevator for speculative sales purposes.

All of the railways involved are making special efforts to increase the inadequate car supply. The Santa Fe has diverted 800 gondola cars for wheat service and is slatting 800 stock cars to add to this service. In addition ice bunkers and floor racks are being removed from 150 refrigerator cars and these will also be used in hauling wheat. It is hoped that these 1,750 additional cars can be kept in shuttle service between the fields and the elevators so as to obtain the maximum utilization from them. Other railways are taking similar emergency measures and all of the lines are spending approximately twice as much as ever before on repairing foreign cars to make them suitable for grain loading.

Largely as a result of last winter's blizzards and the attendant disproportionate share of eastern freight cars on western lines 2,987 grain elevators in the West were blocked as of March 1, 1945. By June 9 this number had been reduced to 43. There is no acute storage situation comparable to that of 1941 and 1942, when the wheat could not be shipped because the elevators were full of old wheat. The following figures show the elevator occupancy as of June 1 in each of the last five years in the Kansas City district where the capacity of regular elevators is 45,030,000 bushels.

Year	Total Grain in Storage
1941	32,740,852
1942	39,396,556
1943	25,598,049
1944	10,113,218
1945	14,995,125

The Kansas City situation is reflected to a large extent in the subterminal markets where only the elevators at St. Joseph, Mo., show an occupancy of as much as 50 per cent and most of the sub-terminals show a far lower figure. Actually, therefore, the situation which prevailed in the early war years does not now exist. In those years, because of the tight storage situation, the railways were able to supply all the box cars necessary for loading wheat up to the capacity of the elevators to receive it. This year, however, the problem is put directly to the railroads and the lack of storage space is not a factor.

The Spring Wheat Situation

The handling of spring wheat from the producing areas of north Nebraska, Minnesota, the Dakotas and Montana will depend very largely upon the success or failure of the railways in handling the winter wheat crop. Normally, the railways in the winter wheat territory begin sending cars north for the spring wheat harvest late in August, at which time most of the winter wheat has already been moved. The prospects for this year are gloomy in view of the

fact that in all likelihood the railways in the winter wheat territory will still be busily engaged in handling their own crop and will not be able to afford the northern lines the relief in the way of empty box cars that is normally given them.

The Car Service division of the A. A. R. is studying this situation carefully in order that there may be an equable distribution of the scant supply of box cars available between the two territories.

Meanwhile the northern lines are moving large quantities of old spring wheat under the Army program but instead of sending cars on all-rail hauls to eastern mills or to eastern ports, as much of the wheat as possible is being shipped to Duluth for lake steamship haul to the East, in order that the cars may make a much more rapid turn around and be utilized more effectively.

To handle the huge Canadian wheat crop, the Grain Transportation committee of Canada will again work closely with T. C. Lockwood who is dominion transport controller. This committee is representative of all the interests concerned in marketing and transportation of grain of Canadian origin and is in control of all movement of Canadian grain with the object of preventing bottlenecks and enabling the railways and the lake carriers to function effectively. According to the last estimate of the grain committee about 460,000,000 bushels of wheat will have to be moved from the head of the lakes to eastern ports on the Great Lakes and to the maritime provinces. To meet this program it will be necessary to load about 1,150 cars of grain per day in the producing areas of the prairie provinces from April 1 to December 1 and the unloading of grain cars at the lake ports of Fort William and Port Arthur at about 1,000 cars per day from the opening of navigation early in April to the close of the season will be required. To meet this program it appears that the strain on the Canadian railways will be virtually as great as it is now becoming on the United States railways.

Matthew Scott Sloan Dies

MATTHEW SCOTT SLOAN, chairman of the board and president of the Missouri - Kansas - Texas Lines and subsidiaries, died of a heart attack on June 14 in New York Hospital, New York. He was 63 years of age.

Mr. Sloan had headed the Katy since 1934. In April of this year he engaged in a bitterly contested proxy battle for control of the railroad with a stockholders' group which had sought, among other proposals, to reduce the number of directors from 15 to 9 and to dissolve the executive committee. The management, headed by Mr. Sloan, received 66.39 per cent of the total vote and elected three of the five directors up for election, giving it a majority representation on the board of 13 to 2. The vote was regarded as an endorsement of Mr. Sloan's program of property rehabilitation and debt reduction, which had saved the railroad from reorganization.

Matthew Scott Sloan

Began Katy Rehabilitation

In his annual report for 1944, Mr. Sloan dwelt on the success of the debt retirement and rehabilitation program which was financed from current earnings. He pointed out that between November, 1942, and December 31, 1944, $36,030,000 of the company's bonds were purchased at a cost of $20,900,461 or 58 cents on the dollar, and that the company now enjoyed a better financial position than at any time in its history. The retirement of bonds through this program, together with the retirement at maturity of equipment trust notes and other funded debt, had the effect of reducing total fixed charges from $4,335,066 at the end of 1941 to $2,537,399 at December 31, 1944.

Appreciating the extensive deferred maintenance accumulated during depression years and foreseeing the important part the railroad was to play in the country's war effort, Mr. Sloan, during 1941, instigated a comprehensive program of property rehabilitation which rapidly gained impetus in 1943 and reached full stride in 1944. This over-all rehabilitation and repair program, particularly as it pertained to roadway and track, was designed and carried out with the long-term aim of bringing the entire property up to high standard. The full story of what was accomplished during the past four years can best be told by reference to the fact that the total cost of maintenance and property improvements aggregated more than $88,700,000, all of which came from current earnings and without borrowing funds and with no additions to long-term debt. This was an average of more than $22,000,000 a year during the four-year period as compared with an average of $8,000,000 for similar purposes during the ten years 1931 to 1940.

Prominent in Industry

Prior to joining the Katy, Mr. Sloan had been president of the Brooklyn (N. Y.) Edison Company from 1919 to 1932 and a prominent figure in New York electric light and power industry for fifteen years. From 1928 to 1932 he also was president of the New York Edison Company, the United Electric Light & Power Co., the New York & Queens Electric Light & Power Co. and the Yonkers Electric Light & Power Co.

He was born in Mobile, Ala., on September 5, 1881. He was graduated from the Alabama Polytechnic Institute with the degrees of bachelor of science in 1901, master of science in 1902 and electrical engineering in 1911. He received a doctor of engineering degree from the Institute in 1929.

Headed Various Utilities

He virtually grew up in the electric industry, beginning his career with the General Electric Company at Schenectady, N. Y., in 1902. Four years later he returned to Alabama as chief engineer of the Birmingham Railway Light & Power Co., rising to the position of assistant to the president. He was appointed vice-president and general manager of the New Orleans Railway & Light Co. in 1914. He went to New York as assistant to the vice-president and general manager of the New York Edison Company in 1917.

He was elected president of the Brooklyn Edison Company in 1919 and when the Consolidated Gas Company purchased the Brooklyn firm in 1928, he was elected president of the New York Edison Company and the three other neighboring utility companies. He resigned his Edison positions in 1932 and two years later assumed leadership of the Katy system.

Mr. Sloan was an aggressive and forthright leader. His term in the utilities field was marked by increased service and efficiency, voluntary rate reductions and the simplification and integration of the several utility companies he headed.

He was a resident of Brooklyn, N. Y., and a member of the Western Association of Railway Executives, the A. R. E. A., the Transportation Association of America and the Traffic Club of St. Louis, Mo.

Top Management Sponsors S. P.'s Public Relations

LOOKING to post-war conditions of competition and trends of public opinion, a committee of Southern Pacific officers is formulating and putting into effect, at the direction of President A. T. Mercier, a unified public and employee relations program for the company. The aim is an integrated management plan under which the Southern Pacific may "go forward harmoniously as a unit, with high morale within the organization, as an outstanding progressive and friendly public service institution."

The program contemplates four principal activities:

1. Continuous education of supervisors in the policies of the company and in methods of dealings with personnel.
2. Various activities to build morale, carried on with the general body of employees.
3. Specialized training of employees who have direct contacts with the public.
4. A unified effort, through advertising, news articles and otherwise, to present to the public an adequate picture of the Southern Pacific as a whole, its aims and activities—as a friendly, progressive institution of service.

The Two Sketches on This Page Have Appeared on Employee Bulletin Boards

Many activities falling under one or another of these four points have been carried on by the Southern Pacific for years. The move now is to coordinate all the public and employee relations items into one program, set up flexibly so that emphasis may be placed on each phase according to its importance in the light of changing conditions, and to add certain new activities.

One of the relatively new activities being taken on by the Southern Pacific is that of training supervisors in the human factors involved in the job of supervision. Earlier in the war period the so-called "job relations courses" of the government's war-time training program were put into effect on the Southern Pacific. A little over a year ago this was followed in the northern district of the company's motive power department with a similar series of more complete courses in human relations in industry, these being conducted by conference leaders of the University of California under the general program of Engineering - Science - Management War Training of the U. S. Department of Education.

The Program Spreads

These courses, conducted in the shops and other mechanical plants of the company at Sacramento, Sparks, Oakland, Bayshore and elsewhere, worked out satisfactorily. One of the first things the committee of officers did was to start extending these courses to other departments and other parts of the system. Currently eight "E. S. M. W. T." courses in human relations are being conducted in San Francisco with conference leaders from the University of California, and four similar courses are being conducted in Los Angeles. The Southern Pacific has arranged for these courses to be continued with several outside consultants and specialists, as well as its own staff, using the conference training method and sound films.

The committee is now formulating a plan, more complete and systematic than before, for the training of employees who have direct contacts with the public, believing that this will be an activity of outstanding importance in attracting business and promoting public good will in the competitive period beginning with the end of the war.

In discussing considerations leading to the move for a more closely coordinated public and employee relations effort, President Mercier pointed out that "ultimately public opinion, expressed in votes and regulation and preference of shippers and travelers, will determine whether or not we stay in business as a going concern and the extent to which our operations are profitable."

"Public opinion," he continued, "is determined in large part by the internal character of the company and the morale of employees, which is reflected to the public in the kind of personal service rendered to customers as well as in the opinions employees express in their individual relationships outside of working hours.

"The morale of employees is, in turn, determined principally by the character of supervision. With a supervisory staff that is well informed, able and willing to answer inquiries of employees and capable and active in setting at rest rumors that may be troubling them, our aim is to eliminate controversies so far as possible by settling issues as they arise, promptly and with absolute fairness. We want all employees to know that suggestions for improvement of methods are welcome.

"The formal, officially established method of dealing with groups of employees is through collective bargaining and agreements, but supervisory policy and practice should not fall to the level of merely seeking to exact the utmost under such contracts.

Encouraging Employee Pride

"The individual relationship between employee and supervisor is exceedingly important. Apart from collective bargaining our supervisors have the duty and opportunity of developing the men under their jurisdiction, each according to his capacity of recognizing the individual, encouraging pride in craftsmanship and emphasizing the self-interest each employee has in the success of the business. From top officers on down each supervisor should know his men and be ready to counsel with them on their off-duty as well as on-duty problems. Each supervisor should open the way for employees under his jurisdiction to come to him freely. Employees should be so treated that they realize Southern Pacific is, as we have advertised, a good outfit to work for. These things are being done now, generally, but we want them to be uniformly done by all supervisors.

"The internal job is large and difficult, involving the problem of influencing

Alice M. DeCass Taking the "Friendly Voice" Test as L. E. Renner, Pullman Reservation and Service Bureau Agent, and T. Louis Chess, General Passenger Agent, Look On

Vincent B. Vaughan, Report Clerk at Union Station Ticket Office Is Shown Filling in the Aptitude Test

helpfully the minds and attitudes of many hundreds of supervisors, several thousand public contact employees and the general body of employees numbering more than 92,000 on Southern Pacific Transportation System. I believe the greatest influence in this will be the personal effort and interest of our top officers, as it is reflected from them down the line to the entire organization.

"All of us realize that times have changed and that we must be resourceful and flexible enough to change methods and attitude to meet the new conditions. People expect a public service organization, such as ours, to perform in popular style, in keeping with the times. We want to make it easy and pleasant for people to do business with us.

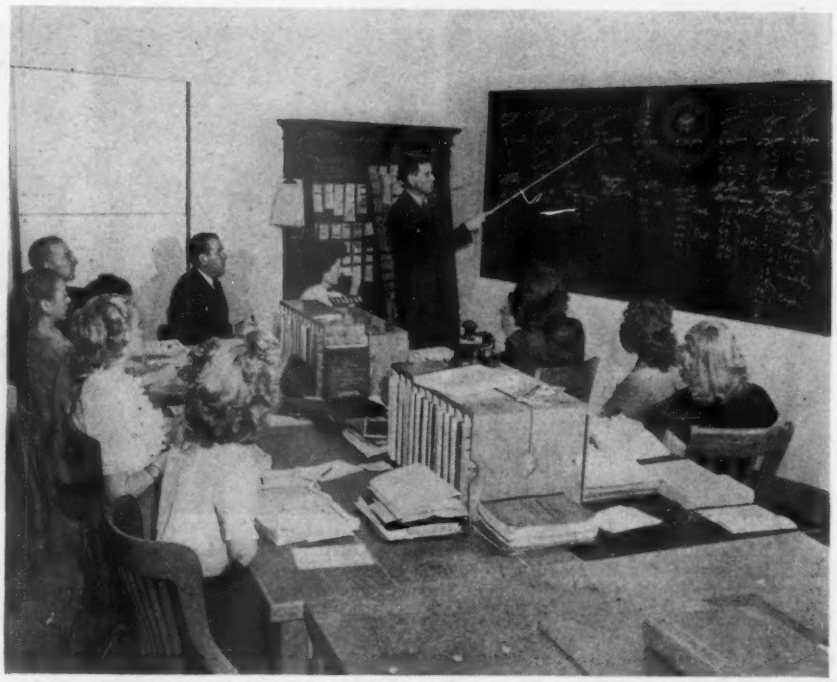
"Our officers should be well and favorably known to the public, especially to those we serve as freight or passenger patrons.

"We do not regard this program as a side issue, nor as promotional effort superimposed on our organization. It is a fundamental principle calling for the strong and sustained support of our leading officers, as a part of their administrative duties, it being their responsibility to see that it is carried down through the channels of organization in spirit and in practical detail."

The committee of officers named by President Mercier to carry the program into effect includes L. B. McDonald, vice-president in charge of operation; W. W. Hale, vice-president in charge of system freight traffic; C. E. Peterson,

Foremen Receive Supervisory Training Instructions from Conference Leader Hobson Ferguson of University of California

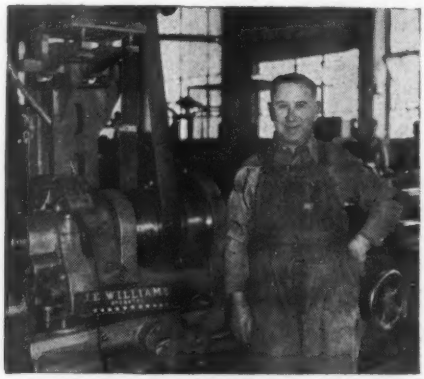
Class for Ticket Sellers Being Conducted by A. S. Mussatti in Los Angeles



vice-president in charge of system passenger traffic; F. L. McCaffery, general auditor; and K. C. Ingram, assistant to the president.

Up to this time, as to general morale activities, the Southern Pacific has not set up any systematic officially recognized program, nor does it seem certain that this will be undertaken by the officers' committee. Rather, the practice has been to encourage those activities originating spontaneously with the employees themselves.

One of the important morale building employee activities has been represented by the Southern Pacific Clubs. There were twelve of these clubs scattered over the Pacific Lines and other similar organizations on the Texas and Louisiana lines prior to the war. Some of these are now partly inactive due to war-time pressures, but substantially the same employee leaders who carried on the peacetime activities now devote their time to war-time drives and similar events. Outstanding among these war-time events is Southern Pacific War Service Day, staged each year at all larger points in honor of the former employees now in the armed forces, and as a tribute to those who have given their lives.



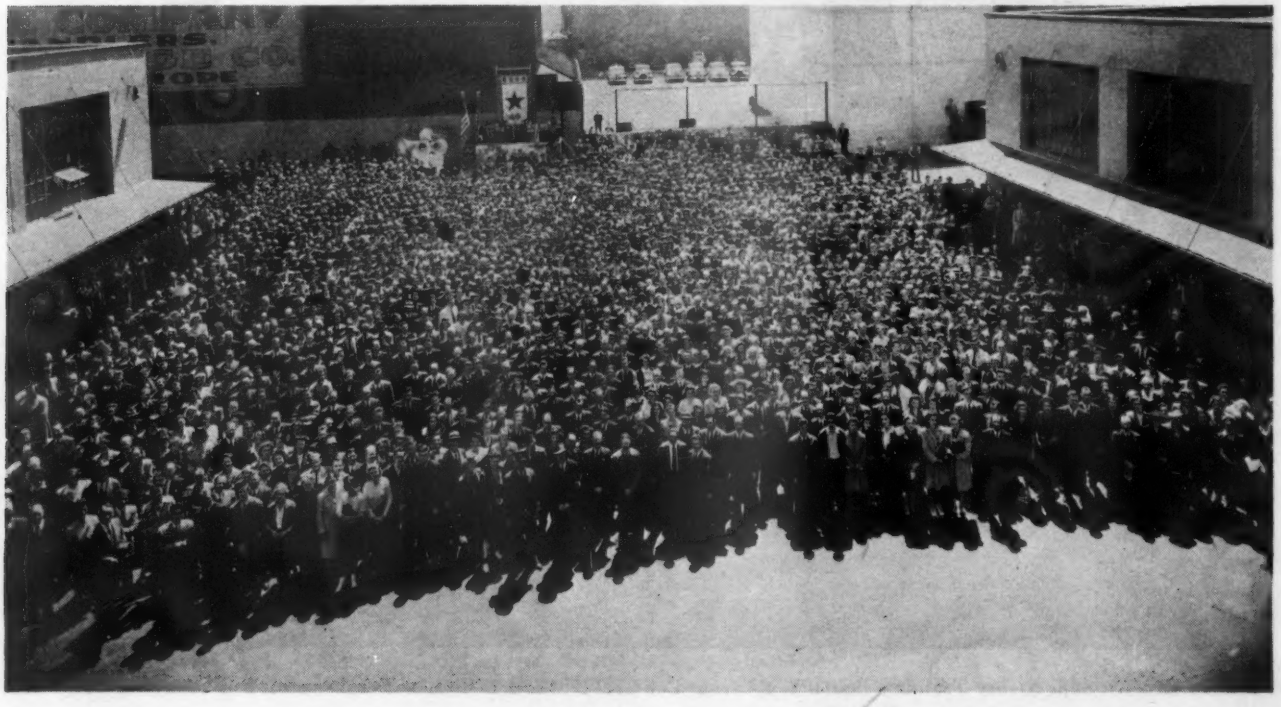
Name Plates Are a New Mark of Recognition—The One Shown for J. E. Williams of the Sacramento Shops Indicates 50 Years of Service (Five Years to a Star)

One of the outstanding S. P. Clubs is at San Francisco, where regular peacetime activities, including social, sports, musical and dramatic affairs are still held, in addition to war-time activities.

Another of the "Old Timers" picnics was arranged for this summer by the group in Los Angeles. More than 8000 attend this picnic. Such affairs as this, the War Service Day, and the annual Christmas carols at the general office building, have the personal participation of President Mercier and other leading officers of the railroad.

Numerous incidental items for promotion of *esprit de corps* have been developed in various phases of the service. One of the recent ones is the placing of individual name plates with numbers of stars according to years of service for each employee at his place of work in

"War Service Day" at San Francisco



the general shops at Sacramento. Incentive speakers from the military service have appeared before many Southern Pacific groups over the entire system.

Tying together and promoting all these activities and keeping the wide-flung organization informed is the highly illustrated employees' monthly magazine, "The Southern Pacific Bulletin." This is now largely directed to the war effort of the S. P. organization.

Special training for public contact employees was provided by the Southern Pacific for a number of years before Pearl Harbor. Especially was this actively pressed by the passenger traffic department. In addition to departmental training, general meetings of employees were held from time to time at principal points on the system, officers and employees alike participating. On many occasions employees themselves wrote and produced dramatic sketches demonstrating the right and wrong way of handling personal service matters with customers of the railroad. Sound films produced by the A. A. R. were widely used. Small conferences for groups of passenger train conductors, agents, and others were held from time to time. Due to war-time pressures, a number of these activities, especially meetings, have had to be abandoned.

Manuals Guide Employees

However, the educational work has been carried forward without interruption through leaflets, posters, and other printed material. Southern Pacific has an excellent letter-writing manual called "Better Letters." It also has a manual on telephone use and has recently issued two new leaflets similar to those used by other railroads, one being on "How to Serve Those Who Cannot See," for the guidance of waiters in dining cars in serving returning service men who have lost their sight, and another called "The Golden Rule," giving guidance to employees in dealing with returned military personnel who have been disabled in combat service.

The company's advertising has backed up the entire program for the last half dozen years under the general theme of "The Friendly Railroad." Up to the time of the war, however, Southern Pacific advertising had been almost entirely devoted to promotion of passenger travel. Since Pearl Harbor the advertising has been turned to public relations and institutional matters having to do almost entirely, with the war effort. Even back in the defense period, Southern Pacific was actively using advertising and publicity to keep its public informed as to its problems and the reasons why certain phases of service to the public could not be maintained under war conditions at peace-time standards. The response of the public to this policy of taking it into the company's confidence has been exceptionally good, and the Southern Pacific has repeatedly expressed its thanks through display advertising and otherwise for the cooperation of the public.

Typical Illustrations from War-time Newspaper Advertisements

Dodecalogue for Public Regulation

On February 17, 1944, in an address to I. C. C. practitioners, the late Commissioner Eastman epitomized in twelve paragraphs his philosophy of government regulation of industry. Less than four weeks later, on March 15, he died. In honor of Mr. Eastman's memory at the time of his birthday, June 26, we repeat this "dodecalogue" — as appropriate now as when uttered, and likely to remain so for a long time to come. Originally published in *Railway Age* of March 25, 1944, this statement has been widely republished throughout the country, has given rise to favorable attention in high places, and holds promise of becoming an expression of long-lasting significance and recognition in the tradition of American economic and political life.

I With the country as big and complex as it is, administrative tribunals like the Interstate Commerce Commission are necessities. Probably we shall have more rather than less. To be successful, they must be masters of their own souls, and known to be such. It is the duty of the President to determine their personnel through the power of appointment, and it is duty of the Congress to determine by statute the policies which they are to administer; but in the administration of those policies these tribunals must not be under the domination or influence of either the President or Congress or of anything else than their own independent judgment of the facts and the law. They must also be in position and ready to give free and untrammeled advice to both the President and Congress, at any time upon request. Political domination will ruin such a tribunal. I have seen this happen many times, particularly in the states.

II The courts were at one time much too prone to substitute their own judgment on the facts for the judgment of administrative tribunals. They are now in danger of going too far in the other direction. The principle that it is an error of law to render a decision not supported by substantial evidence is a salutary principle. The courts should enforce it.

III An administrative tribunal has a broader responsibility than a court. It is more than a tribunal for the settlement of controversies. The word "administrative" means something. The policies of the law must be carried out. If in any proceedings the pertinent facts are not fully presented by the parties, it is the duty of the tribunal to see to it, as best it can, that they are developed of record. A complainant without resources to command adequate professional help should be given such protection. The tribunal should also be ready to institute proceedings on its own motion, whenever constructive enforcement of the law so requires.

IV There is no safe substitute in the procedure of the tribunal for full hearing and argument of the issues, when they are in controversy, although the hearing need not always be oral. This takes time, but it is time well spent.

V The decisions of the tribunal should present succinctly the pertinent facts, as they are found to be, and the conclusions reached, but also state clearly the reasons for the conclusions.

VI The statutes which the tribunal administers should be well, simply, and carefully framed, but the personnel which does the administering is more important than the wording of the statute. Good men can produce better results with a poor law than poor men can produce with a good law.

VII It is not necessary for the members of the tribunal to be technical experts on the subject-matter of their administration. As a matter of fact, you could not find a man who is a technical expert on any large part of the matters upon which the Interstate Commerce Commission finds it necessary to pass. The important qualifications are ability to grasp and comprehend facts quickly, and to consider them in their relation to the law logically and with an open mind. Zealots, evangelists, and crusaders have their value *before* an administrative tribunal, but not *on* it. Other important qualifications are patience, courtesy, and a desire to be helpful to the extent that the law permits.

VIII Moral courage is, of course, a prime qualification, but there are often misapprehensions as to when it is shown. The thing that takes courage is to make a decision or take a position which may react seriously in some way upon the one who makes or takes it. It requires no courage to incur disapproval, unless those who disapprove have the desire and power to cause such a result. Power is not a permanent but a shifting thing. I can well remember the time when it was a dangerous thing to incur the displeasure of bankers, but there has been no danger in this since 1932. It became a greater danger to incur the displeasure of farm or labor organizations. There is nothing more important than to curb abuse of power, wherever it may reside, and power is always subject to abuse.

IX Selection of the members of an administrative tribunal from different parts of the country has its advantages, but they turn to disadvantages, if the members regard themselves as special pleaders for their respective sections.

X Sitting in dignity and looking down on the suppliants from the elevation of a judicial bench has its dangers. A reversal of the position now and then is good for the soul. It has for many years been my good fortune to appear rather frequently before legislative or Congressional committees. They are a better safeguard against inflation than the O. P. A.

XI In any large administrative tribunal, like the Interstate Commerce Commission, a vast amount of the real work must necessarily be done by the staff. It is a difficult problem to give the individual members of the staff proper recognition for work well done—recognition on the outside as well as the inside. It is very important that this problem be solved, but I am frank to say that its full solution has not yet been reached.

XII One of the great dangers in public regulation by administrative tribunals of business concerns is the resulting division of responsibility, as between the managements and the regulators, for the successful functioning of these concerns. For example, there was a tendency at one time, and it may still exist, on the part of those financially interested in the railroads to think of the financial success of those properties solely in terms of rates and wages and the treatment of rates and wages by public authorities. Sight was lost of the essentiality of constant, unremitting enterprise and initiative in management. The importance of sound public regulation cannot be minimized, but it must not be magnified to the exclusion of those factors in financial success upon which ordinary private business must rely.

A 50-Ton Hopper Car of Cor-Ten Steel Originally Weighing 30,500 Lb. After 10 Years of Service—The Side, Slope, and Hopper Sheets Were 3/32 In., 1/8 In. and 5/32 In. Thick

Properties of High-Strength Steels

A discussion of problems of design involved in utilizing the weight-saving potential of the properties of these materials—The economics of weight saving are reviewed

Part II

By FREDERICK D. FOOTE

President, Alloys Development Corp.

WEIGHT saving without loss of service life is the prime benefit conferred by the high-strength steels. Using the working unit stresses in tension determined in the example of the previous paragraph* with reference to a 33,000 lb. per sq. in. minimum yield point, the area of members to carry a tensile load of 48,000 lb. may be determined. For ordinary steel the area = 48,000 ÷ 16,000 = 3.00 sq. in. For high-strength steel the area = 48,000 ÷ 24,000 = 2.00 sq. in. It is seen that the superior steel effects a weight saving of 33⅓ per cent, brought about by its higher yield point.

Compression members differ from tension members in that they are subject to buckling and must be so designed as to prevent its occurrence. In the derivation of column formulae for working unit stresses, both the yield point and modulus of elasticity enter into the solution. For the lower values of L/r (say, below 75 or thereabouts) the yield point is predominant in controlling the unit stress, while above $L/r=75$ the modulus of elasticity is the principal factor. Since the modulus of elasticity is the same both for ordinary structural and high-strength steels, it is evident that weight saving will diminish as the values of L/r increase. However, most primary compression members come within the range where the yield point is the more important factor and, hence, weight saving will approach that obtained in tension members. At $L/r=75$ the saving is about 29 per cent.

The next class of structural members which must be considered are those subjected to bending, such as beams and girders. Within reasonable limits, it can be shown that increasing the depth of such a member will often result in weight saving, but since this step is equally available with either ordinary or high-strength steels, it is desirable to make any comparison upon the basis of equal depths. Theoretical investigation indicates that weight savings should approach those of tension members.

Weight Saving

Where the design involves rolled beams and channels, the weight saving to be obtained with high-strength steels will depend upon the section used in ordinary structural steel. There are practical limits of weight and thickness below which structural shapes cannot be rolled and if, for example, a beam of structural steel is at the minimum limit, then it is impossible to achieve any weight reduction by direct substitution. However, by the use of sections cold formed from plates, sheets, or strip, reduction in weight can be secured and such sections may prove acceptable substitutes. With suitable techniques and equipment, it has been proved that these steels can be welded quite satisfactorily by either the electric arc or resistance process. This adaptability to welding permits still greater distribution of metal to the point where it is most needed and to some extent frees the designer from the limitations imposed by rolled structural shapes. If rolled beams and channels are designed for section modulus, regardless of the depth, there will be an

* See page 1059 of June 16 *Railway Age*.

average weight saving of about 25 per cent.

The preceding discussion of the weight-saving possibilities of high-strength steels has been predicated upon obtaining the indicated thicknesses in all cases. In practice, steel shapes are available only in standard sizes and to stated thicknesses and, unless an order involves sufficient tonnage to warrant deviation from these standards, the designer must select the sizes that come nearest to his calculated requirements. Experience with a wide variety of applications has demonstrated that, with all factors considered, the weight saving will average about 25 per cent. Skillful designing may increase this saving and it may even approach that of tension members under the most favorable conditions.

Elastic Stability

The reduction in thickness which results from the use of high-strength steels may often raise problems of elastic stability, a field of design which may be more or less unfamiliar to many engineers. Current specifications for structural steel contain numerous limiting clauses the purpose of which is to prevent local buckling due to elastic instability, and, therefore, many engineers are unaware of the problem involved. However, when designing for high-strength steels, it is essential that study be given to this matter.

The theory of elastic stability has received much attention in recent years, particularly in the aircraft industry. It is an extensive subject that cannot be covered in a discussion such as this. In the solution of many problems it has been found most desirable to develop the required information as to stability by means of tests upon actual structures or upon their members. Here theory and practice go hand in hand. The more complicated the structure, the more vital has been the need for testing theory against practice.

When weight saving is the important item, and it is in most cases where high-strength steels are under consideration, one can readily appreciate that the more precisely an engineer knows the stresses to be carried, the more efficiently he can dispose the steel, quite possibly with a lower factor of safety. To attain a better knowledge of the stresses and their distribution requires the application of some of the newer methods of analysis.

During the past few years there have been some noteworthy developments, including electric strain gauges and accompanying apparatus for measuring and recording test results. The use of these gauges has widened rapidly in many fields for the purpose of measuring the actual stress conditions in structures under service loads and in testing laboratories.

Mobile structures constitute a field for which high-strength steels are particularly promising in their possibilities. They are just the class of structures for which the load conditions are most apt to be uncertain. Past failures in service with ordinary steel have usually been corrected by blindly adding material until the possibility of future failure was finally stifled without getting at the root of the trouble. This is not a successful method for reducing weight. A fertile field of practical research into the actual stresses existing in mobile structures is offered by the present lack of knowledge.

At present, the only feasible way to solve the problem of substituting high-strength steels where knowledge of stress conditions is meager is to reason from existing structures in ordinary steel. The general method of substituting on the basis of equivalent strength has been set forth in the previous discussion. This method encounters difficulty where corrosion conditions are such that the original thickness in ordinary steel is not based upon strength but on providing an allowance for eventual reduction in thickness due to corrosion.

Deflection

Deflection should be considered in any examination of a design for high-strength steels. Every deflection formula has the modulus of elasticity E in the denominator. Since the value of E is the same for either ordinary or high-strength steel, it has no effect in comparisons. For beams of equal span, the formula is of the form

$$y = \frac{Kf}{Ed}, \text{ where}$$

y = deflection
K = a constant depending upon the span and loading
f = unit stress in extreme fibre in bending
E = modulus of elasticity
d = depth of the beam

An examination of this formula indicates that for a given span and load with the depth remaining unchanged the deflection will be proportional to the unit stress. We have seen that the unit working stress is determined from the yield point, which leads to the conclusion that the deflection of a structure of high-strength steel will be about 50 per cent greater than for ordinary steel, unless this added deflection is controlled by the introduction of stiffening features. In the majority of cases an increase of this amount in deflection is of negligible proportions.

Fatigue and Impact

Thus far, nothing has been said about some of the collateral questions which are bound to arise when studying the suitability of a high-strength steel for application in a particular structure. An engineer will require data respecting the performance of the steel under fatigue and impact when operating at subzero temperatures. Of course, service tests are the ultimate answer, but, they are not always available. Laboratory tests are the next best source, and the more nearly such tests approximate service conditions, or can be shown to be correlative with service, the more weight can be accorded to them as useful guides to engineers in forming correct judgments. When a test lacks correlation with service, it becomes largely qualitative in character and there is then the possibility that the results will be inapplicable.

All designing is done on the basis of pounds per square inch and any test which uses other units in recording its results is difficult to evaluate in terms of design. Such tests, in particular, need the experience of service to establish their value. In a series of articles by Dr. H. W. Gillett, beginning in the November 22, 1943, issue of "Steel," Dr. E. C. Bain was quoted as saying: "The importance of practical testing should be stressed; the best test specimen *is an actual part* loaded to simulate the state of stress encountered in service but to an aggravated degree if necessary."

Notch impact tests on Charpy and Izod specimens measure their results in foot pounds of energy absorbed and thus have only a qualitative significance which cannot be directly translated into terms of maximum permissible dynamic load in pounds per square inch. As matters stand today, these two tests have been performed extensively and, although familiar to most engineers, their interpretation has not been a matter of very widespread agreement or understanding. Most low-carbon structural steels are quite notch sensitive at moderately low temperatures. However, these steels, when designed and fabricated free of notches and severe multi-axial stress, perform satisfactorily even under severe conditions of dynamic loading.

One wonders, therefore, whether the emphasis upon notched-bar impact testing may not in part be misplaced. As a matter of fact, the use of the word "impact" in these tests has been quite misleading since they do not even qualitatively measure the ability of a structural steel to withstand high-velocity loading when no notches are present. Actually, it has been shown that if the Charpy or Izod specimens are loaded to failure by slow bending, the energy absorption is practically the same as under impact. Conversely, steels which exhibit brittle behavior in the Charpy and Izod tests will withstand extremely high loading velocities in pure tension without departing from their normally ductile behavior.

Recent studies of these two tests indicate that they do, indeed, have a proper place in materials engineering in such applications as those in which ballistic loading velocities are anticipated along with notches and very high operating or fabricating stresses. They are, likewise, important to the designer anticipating severe multi-axial stresses, particularly at low temperatures such as those encountered in certain chemical processes. These thoughts on the subject are substantiated by the thousands of structures built both of ordinary and high-strength steels that have performed satisfactorily under rigorous operating conditions in actual service at very low winter temperatures. *The size and mass of actual structures must make the absorption and distribution of energy a far different matter than may be determined by small specimens that can be slipped into a vest pocket.*

Severe Corrosion, Spalling, and Scale from 1/4-In. and 5/16-In. Plates in a Copper-Bearing-Steel Hopper Car

Fatigue tests in common use are reported in terms of pounds per square inch and do come within the terms of design. Polished specimens yield quite different results from those with original mill scale or with geometrical irregularities, but they do serve as a comparative measure of performance. It is common practice to devise special tests and apparatus to simulate service conditions, confirming the fact that such tests have real value and carry weight. Considerable evidence has accumulated to indicate that in many cases fatigue failures arise from notches, scratches, tool marks, localized corrosion, discontinuities in the metal, or abrupt changes in cross-section—all of which give rise to the phenomenon known as stress concentration.

To illustrate this point, the excellent analogy originating with H. Malcolm Priest is quoted: "It may be helpful to think of stress flowing or traveling through the steel much as water flows in a smooth channel. A notch or other interruption is like a pier in the channel, tending to divert the stress flow and causing a congestion at the base of the notch similar to the turbulence of the water. Such an action can raise the unit stress in a very localized region by two or three times that of the average unit stress. Action of this kind is not due so much to the steel itself as to the 'geometry' of the member. It must be said, however, that some steels are more 'notch sensitive' than others; that is, cracks seem to appear more readily."

The metallurgical factors which influence notch sensitivity are not too well understood, but some qualitative conclusions can be advanced. The feeling is prevalent, as indicated by the concluding sentence of the above quotation from Mr. Priest, that certain types of high-strength steel are less notch sensitive than others, and though there may be some truth in this, it should be regarded as one of the least important factors. Actually, grain size and thermal history (that is to say, rolling and finishing temperatures) are vastly more important. This belief is supported by the effect that normalizing and heat treating have upon these compositions. For example, the notch sensitivity of practically all hot-rolled structural steels is consistently poor in thickness over one inch. With decreasing thickness there is considerable improvement in the Charpy and Izod values obtained, and this improvement extends to lower testing temperatures, suggesting that in hot-rolled steels finishing temperatures and final grain size are important. These considerations indicate that greater attention should be paid to certain phases of steel metallurgy aside from a critical study of chemical analyses.

Forming and Fabrication

No design can be considered adequate if it has not taken into account the performance of the steel as it goes through the forming and fabricating processes. Here ductility plays an important part. High-strength steels are popularly said to be "stiffer" than ordinary structural steel. This is due to the fact that the higher yield point requires greater effort or force to deform the steel beyond the elastic range, as in pressing or bending. This extra effort is offset in large measure by the thinner sections in high-strength steels. However, it has been found advisable in practice to use larger radii or fillets in forming operations.

One fabricating process, namely, welding, has raised many questions, some of them of serious proportions. From the welding standpoint it is desirable to select a high-strength-steel composition in which the elements used to obtain the desired tensile properties are selected or adjusted in such a manner as to keep the weld hardenability of the alloy at a minimum. The seriousness of this problem with most of the high-strength steels does not manifest itself in the welding of sections ½ in. or lighter in thickness. With greater thicknesses, however, the intensity of the weld-quench effect is increased and the use of special techniques or electrodes may be necessary.

Much has been learned during the war of methods by which steels having a relatively high weld hardenability may be satisfactorily fabricated either by fusion or electric resistance methods. This entire problem, of course, is greatly minimized by the selection of high-strength steels having relatively low carbon contents. In welded structures even ordinary structural steel has been involved in trouble, but the cause is generally to be found in mistakes of design, overlooking notch effects or failing to recognize zones of stress concentration. The most satisfactory welded structures are those in which these factors are considered and a real attempt is made to adapt the design to the characteristics of welding.

Welding is essentially a metallurgical process, involving the melting and subsequent rapid cooling of the base metal and the intermingling of the metal of the electrode, or welding rod, with the base metal. It is well known that the rate of cooling has important effects upon the character of the final state of the metal and its hardness in what is known as the "heat-effected zone." The chemical com-

position of the base metal has a vital bearing on the behavior of a steel in the welding process.

As already stated, the high-strength steels achieve their superiority by the addition of alloying elements, the effect of which is to alter the behavior in welding operations. Knowing this, it is natural that an engineer should want assurance as to the performance which may be expected with any particular steel. The same questions as to corrosion resistance, strength, impact, and fatigue that are important for the steel itself are pertinent for welds in the steel, and the approach in reaching the answers is the same in both cases.

Not many subjects have received such extensive and intensive research at the hands of skilled metallurgists and engineers as that of welding. They have had to pioneer the way through many unknown factors. The usual laboratory tests have been employed and others have been devised. Here, again, correlation with service is essential to sound judgment. Let us avoid the adoption of tests that have little practical significance. Welding is in extensive use for fabrication, and the resulting structures are now providing dependable service records. High-strength steels are in many of these structures, particularly in railroad cars, and they are performing in a most satisfactory manner.

Weight-Saving Economics

Finally we come to the question of how much the prospective owners and operators of modern lightweight equipment can afford to pay for weight saving. The factors to be considered will vary greatly with the conditions of the service. In some services, in which severe mechanical abuse and highly corrosive conditions predominate, the additional cost of the high-strength steel in thicknesses equal to those normally used in plain copper-bearing steel may be indicated and fully justified. In general, however, equal service life and maintenance costs may be obtained with substantial weight reductions of the order discussed earlier and of a degree safely within the limits provided by the superior properties of the corrosion-resistant high-strength steels. The initial cost of these light, highly efficient structures need be little, if any, more than their cumbersome predecessors. Thorough studies of these questions indicate that the operating savings to be realized from deadload reduction far outweigh considerations of added service life in many mobile structures.

The design of freight cars, including materials employed, is a potent factor in the cost of transportation due to its effect upon the ratio of payload to dead weight. During the past 20 years the weight of freight cars has increased more than the average weight of the loads they carried. On many roads, the gross ton-miles, exclusive of locomotive and tender, have been three times the revenue ton-miles. Special loading rules in effect during the war have improved this ratio, but relaxation of such restrictions in post-war days may bring results back to approximately pre-war figures. Expedited delivery has been one of the most effective means of competing with other transport agencies; hence, to retain traffic under post-war conditions the railroads will need to move freight trains faster, and this will again emphasize the need for lighter cars.

It is encouraging that studies now in progress promise to clear away some of the contradictory opinions concerning the savings to be obtained from reduction of dead weight in freight cars. At present it is contended that savings range all the way from 3.4 mills per ton-mile for weight carried in refrigerator cars down to .379 mills for 50-ton box cars. The high rate for the cost of hauling additional weight in refrigerator cars is supported by expert evidence submitted to the Interstate Commerce Commission about 10 years ago. The low rate of .379 mills for box cars is shown in the Mechanical Advisory Committee's report, which also showed a cost of 1.3 mills for 50-ton hopper cars. At about this same time Ralph Budd estimated that the cost of moving a ton-mile in a freight car, not counting contents, was 1.13 mills.

That the actual savings are substantial and fall somewhere in between the extremes mentioned seems well supported from the fact that 22 railroads have used high-strength steel in building more than 31,000 box cars and that this figure represents approximately 60 per cent of all of the high-strength-steel equipment now in service. It is not likely that the 22 railroads referred to would have adopted lightweight designs if they had placed any reliance upon the inconsequential savings for box cars published in the Mechanical Advisory Committee's report.

Moreover, the rapid technological progress now being made points as never before to obsolescence as a factor of the greatest importance in determining the most economical span of life. Data assembled after a decade, during which the performance of thousands of mobile, lightweight structures have been examined, seem to indicate that the period of service life for which the equipment has been designed heretofore should be re-examined and perhaps shortened in order to take full advantage of the utmost that can now be obtained in weight saving and pay-load capacity.

Freight Car Age

The age of freight cars now in operation on American railroads has been reported by the American Railway Car Institute which shows 539,000, or 30.7 per cent of the cars owned by Class I roads, are over 25 years old; 299,000, or 17 per cent, are 21 to 25 years old. Thus, it is shown that nearly one-half of all of the equipment operated was built to designs of more than a generation ago. But it is not to be concluded that a majority of these cars are in line for early retirement. In a very real sense the figures quoted are misleading because, in many instances, little of the original cars remains except the car numbers and their outmoded designs. This is due to the fact that much of the old equipment has been renewed repeatedly by the railroads and returned to service. Thus, the original load ratios are maintained and the dead load continues to weigh heavily upon the operating picture.

This discussion has been aimed at a consideration of the principal features of designing for high-strength steels. Some of the best of these have now been in service for a sufficient period of time to make it appear that the problems of design are no longer so largely concerned with the steels themselves.

Ten years of experience with various applications have built a record of performance in service that attests to their satisfactory use and lasting qualities. In fact, it can now be shown that the initial claims made for some of them have been exceeded by a substantial degree.

* * *

Photo Courtesy C. N. R.

A Section of the Canadian National's Storage Yards at Port Mann, B. C., Where Hundreds of Flat Car Frames, Trucks and Wheels Ordered Built in Canada by the U. S. S. R., Await Shipment to Russia

Transport Is Key to Victory in Pacific

Tremendous distances and crudity of existing facilities put a colossal job up to the Transportation Corps

By BRIG. GEN. T. B. WILSON

DURING this war we've listened to a lot of talk about secret weapons. The Germans had them and, while they succeeded in killing a lot of people and doing considerable damage with their V-bombs and their buzz-bombs, such contraptions had no effect whatever on the outcome of the war. Now the Japanese are trying them out. They send "suicide squadrons" against our ships and our men, and they are turning loose explosive balloons across the Pacific in the hope of destroying life and property in this country. None of the fantastic things dreamed up by enemy scientists can touch, however, for deadly effect, the American secret weapon—our miracle weapon—the supply line. Along that line, no matter what part of the world it is in, flows, in ever increasing quantities, guns, ammunition and food for the fighting men of our Army and Navy. Our supply lines are the most powerful weapons in the world. They worked against the Germans and now they are working on the side of the men who are pounding at Japan's citadels.

Telling the World

A week or so ago I was startled to see a newspaper headline declaring boldly that we were showing our hand to the Japanese so they would know what to expect—and where! We told the world that the United States intended to send nearly four million men against the remaining enemy. The Navy lifted its veil of secrecy on the undersea activities and said that it was becoming increasingly difficult to find targets for American submarines. The Army went into details on a new bomb, even to describing the chemical content—this, and more of the same for about two columns.

It made interesting reading for me, because it was in such vivid contrast to the state of mind we were in just after Pearl Harbor, when I left on practically no notice for the Southwest Pacific to help set up a theater of war in Australia, and start the flow of men and materials against the same enemy we now hold in such contempt. Believe me, in those days we were not announcing to the gentlemen of Japan what we had to use against them. If they only knew how little we had, the outcome of the war just might not be the same—in any event it would have been a much longer war.

In February, 1942, I opened an office in Melbourne, and with the help of one United States Army captain and six Australian civilians, went to work to establish the Transportation Service in that theater. Later it became the Transportation Corps. We had our headquarters in a school house, in an empty class room on the second floor, and our first job was to get some measure of relief to General MacArthur. We made a tremendous effort. About a month after we started, General MacArthur arrived from Corregidor.

Since the campaign out of Australia had to be carried out on water that meant ships. We had no ships. I wrote some terrific wires that General MacArthur backed up and sent to Washington. We demanded boats in every form of the English language that you could put together, but it didn't get us anything but answers. I approached the Australian shipping control board and, with General MacArthur's backing, they gave us 25 coastal ships and about 65 sea-going trawlers. We actually started the Buna campaign with trawlers.

Some of those ships they gave us had been shot up and bombed and needed a lot of work done on them. They all had to be reconverted. The best ones we made into troop carriers that were sent out from Australia to the surrounding islands, and the smaller ones were taken to the islands and kept there, working in and out of coves and inlets, carrying supplies. General MacArthur put us to work getting all manner of craft together. We set up a "Small Ships Section" in our office which handled nothing but ships under one thousand tons. We needed hundreds of these and for the most part we had to build them, although we did requisition some from private owners. The hulls were built in New Zealand and Australia and we brought the engines and other machinery over from the United States.

Ground Transportation

Australia had never been a ship-building country, but the exigencies of war made one out of it. Every available facility was put to work building. One plant built bows, another sterns, and still another midsections. When sufficient sections were on hand to build a boat, they were welded together on a ways. Then they were put to work transporting men and supplies wherever they were needed.

Ground transportation gave us something to really think about. There were no roads in the interior of Australia and what railroads there were were all of different gages.

Among the officers who came down from Corregidor with General MacArthur was a fine old gentleman named Colonel Jenks. He told me many of the experiences of the Bataan and Corregidor campaigns. Some of them were not funny, as you can well imagine, but one of them had an element of humor. The one subject of conversation on Bataan had been "When is relief coming?" The great United States was certainly going to bring out the Navy, and all available troops, and everything else—they believed. They listened to the radio and seized upon any bit of news that would give them comfort. Well, they were driven off Bataan and onto Corregidor, and they were still listening. One afternoon when it was quiet and the Japs were not causing too much trouble, Colonel Jenks noticed an old sergeant sitting on a box near the radio. He was sort of dozing and resting and listening to the music when suddenly it was cut off the air and the news came on. The first announcement was the shocker that American troops had landed in Ireland! Colonel Jenks said that the old sergeant jumped up, kicked the box and yelled, "By God, they've pulled a Corrigan on us."

Unloading the "Mary"

One of the most dramatic events of the hectic days was the unloading of the "Queen Mary" at night in the harbor at Sydney. The "Mary" had come down to Australia by way of the South Atlantic and the Cape of Good Hope carrying a full load of troops. To get them off safely we had to work at night which complicated matters for the hastily assembled volunteer transportation corps, none of whom had previous experience in work of this kind.

To facilitate the unloading, I had sent an adjutant captain out to Freemantle by plane. He boarded her there and by the time the big ship got around to Sydney the unloading procedure was lined up. By doing this we avoided a great deal of delay. We not only had to work in the dark, we had to work fast.

These troops were destined for three different points. We gave the soldiers tags of different colors each indicating a different destination which they tied onto their uniforms and in this way we avoided any possible mixup.

However, it was not as simple as it sounds. The elements turned on us too. It seemed ironic that after Australia had experienced one of the worst droughts

This article is an abridgement of a June 15 address to the Army Transportation Association at New York. General Wilson has relinquished his military duties and is back in civilian life as chairman of T. W. A. airlines.

in its history the heavens should open up the night the "Queen Mary" arrived and send forth a deluge. On this night all the rain that had been stored in the skies for months poured down on those waiting soldiers and on the volunteer transportation corps which had been hastily assembled to take the troops off the big converted liner. In spite of slickers and boots, everyone was soaked to the skin, but we got her unloaded, sped the men on their various ways and had the "Queen Mary" safely outside the harbor before daybreak.

Supplying Port Moresby

Earlier in the year, the Japs had seized the Australian-mandated islands of the Bismarck archipelago. From there they were sending their troops toward New Guinea and Australia. New Guinea is a thinly settled land of trackless jungles, unexplored and uninhabited. The chief settlements on the northeastern shore, Salamaua and Lae, were occupied by Japs and their forces were headed across the Owen Stanley mountains to Port Moresby, 110 miles away. Port Moresby was a point of critical importance to the defense of Australia; vital to the continuance of war in the Pacific and the maintenance of threatened lines of communications. They had to be stopped and we had to furnish supplies to the armies which would stop them.

There was but one small dock at Moresby and it could only accommodate one vessel at a time. While unloading the vessel would keep up steam and full crew aboard so that at any time of threat of bombing it could drop its lines and steam away, circling and zigzagging to keep from getting hit by the strafing planes. Even so, some were hit and sunk. We ran an incredible number of trips in safely, however.

Meanwhile the Japs kept moving down the northern coast of New Guinea and overran Buna, seizing the eastern terminus of a road directly across the eastern arm of the island from Port Moresby. General MacArthur chose to make a stand at Milne Bay, not far down the coast from Buna. But before undertaking to establish the base there, we made a reconnaissance flight over the area to study the harbor.

I lay on the floor of the airplane and studied the harbor through an opening in the floor, checking the reefs and picking out the channel. All Milne Bay had to offer was one small plantation jetty, but an old schooner skipper had told us there was one deep place near a sandbank, and we found it.

After some 21 months we got the transportation organized and working, and then I was taken up to the China-Burma-India theater. When I reached there, the ports were pretty much blocked; ships had been laying at anchor for weeks. You couldn't get anything into a port; you couldn't get anything out of a port. In the early days the British were expecting an invasion of India from the east coast, and had moved everything over to the west. Karachi was the principal port of the United States Army but it was about 2000 miles away from the area in which we were operating. That wasn't so good, so we arranged with the British to permit us to use Calcutta instead and save that long trip.

The situation in Calcutta was the same as everywhere else—terribly confused. We could get nothing unloaded without a long delay and the supplies were building up in tremendous piles. We couldn't move them in any direction. Finally we asked the British to let us have the King George dock to ourselves so we could concentrate our efforts instead of running around all over the place. They were glad to let us have it. We cleaned up that dock and went to work. After a lot of trial and error, we developed an efficient system.

To unload the ships we used coolie labor, and put our American negro troops in charge of them. This worked exceptionally well because the colored troops were efficient stevedores and, although neither the boss nor the gang knew one another's language, they worked out some sort of pidgin talk made up of Hindustani and American and they got along fine.

Dearth of Facilities in C. B. I.

Americans, accustomed as we are to fine port facilities, railroad systems, air lines and public roads, find it difficult to conceive the complete lack of such facilities in India, Burma and the hinterland of China. To reach China today, supplies for our troops in that area must be sent on an ocean voyage 12,500 miles, requiring 43 days, to ports in India. From there they must be transported by railroad or by river to the wild northeastern province of Assam. The distance by rail from Calcutta is 800 miles. By river it is 1,200 miles.

To get to Assam from Calcutta by rail means using the broad-gage lines to Santahar and Parbatipur, then the military railway meter-gage line from Katihar through Parbatipur to Northeast Assam, and finally the Bengal & Assam meter-gage line from Santahar across the Tistamukh Ferry and up the Hill Section, and finally into Assam.

The barge line meandered up the Brahmaputra, which is a river something like the Mississippi, but the barges were slow—it took 56 days to make a round trip—and the supplies were insufficient. The British were moving some 75,000 tons a month up to Assam but this was not enough to supply the needs of the armies at the other end of the line. We had to either take our troops out of the theater or get more materials in to them.

So, on March 1, 1943, we took over the Bengal & Assam, a narrow-gage line wandering through the jungles, and operated it with six railway battalions. We revamped the British operation by starting the barges at the junction of the railroad and the river at Gauhati. We increased the trains from 50 to 80 and finally to 100 carloads per day, and in that way we broke the bottleneck and jumped up the service.

The combination, when it really got going, handled several hundred thousand tons a month. The back accumulation of freight was cleaned up and, for the first time in history, the Transportation Corps had to go around soliciting freight instead of tearing its hair at the backlog. I must say that we could not have done so well without the help of our British friends, who at times I must also say, got a little fed up with us and our methods, but we did work it out. We also showed the British and the Indians some ingenious ways and means of operating meter-gage railroads, as well as barges on the river. Aviation played a major part in this operation, of course. We took tons of equipment and flew it over mountains whose minimum altitude is 18,000 feet.

When the freight was landed in China, most people thought that the job was finished, but it wasn't. Far from it—we had to move that stuff on, and that meant surface transportation across China. To do it we used trucks, and you should have seen some of those trucks. They came down the road with the front fenders waving at you. We ran them on charcoal and alcohol.

We built up a good supply of materials on the China side. We got it delivered all over China by every known method of transportation—sampans on the rivers, junks, pack trains, and trucks. We flew 100 trucks over the hump by cutting the chassis in two with an acetylene torch. We could take three trucks over in two plane loads. Then, in China, we would weld the chassis together again. That helped to get supplies out to the fields to keep Chennault going.

Another thing we did to keep things moving in India and China was to put a staff of our men at every British depot and at every junction. They kept things moving fast.

The Ledo Road

Then, of course, our forces built the Ledo Road. The Ledo Road is solid proof that no job is too big for American engineers and American construction equipment to master. Plans for this road were submitted to General Stilwell on November 5, 1942, and a month later the road officially became an American project, and American troops were working on it. During the first monsoon season the road almost disappeared beneath the workers. The rain washed away all traces of it at many points and sometimes took the equipment with it down the sides of the mountains. Also, 80 per cent of the engineers got malaria. But General Stilwell was depending on that road to supply his winter campaign, and General Stilwell got his road.

As Stilwell's offensive moved into high gear, Brigadier General Lewis Pick, in charge of the Ledo Road's construction, diverted a large percentage of his men to do combat engineering for both Stilwell's Chinese troops and Brig-

adier General Frank Merrill's Marauders. The Engineers' armored bulldozers cut combat trails through the jungle in advance of the infantry so that tanks, artillery, and supply trucks could move to the battle sites. This combat engineering reached its climax in May, 1944, when two battalions were flown from the road into Myitkyima to relieve the Marauders in helping take that city in a 74-day seige.

Meantime, 189 miles of the Ledo Road had been laid out before the 1944 monsoon began. One hundred and seventy-five inches of rain were recorded in the North Burma hills during the monsoon season of 1944, but the road held. There was an occasional block, but truck convoys and heavy equipment moved forward regardless of the rains, and reached the advance depots from where they could begin new construction at the rainy season's end. Once the Engineers built a causeway more than a mile long, that took more than a million board feet of lumber, in order to lift the road above one flooded section of the Hukawng Valley. It took them 40 days and nights, working constantly. But when the 1944 monsoon ended, everything was ready for the last jump, and that was made in due time and order.

Supplying the Atlantic was a tremendous thing, but the Pacific war, by its very distances, challenges the imagination of a transportation man because the war against Japan is fundamentally a transporttion war. If we could quickly transfer the military might of the United States to the Pacific islands, the war would end very soon. It is only necessary to look at a map to appreciate the differences between the European and Japanese theaters of war, particularly so far as transportation is concerned. In the Orient there is no England, with buildings, roads, and a supply of trained workers to help build bases. Everything has to be transported to those island outposts.

One of the most discouraging factors in the Pacific war is one that requires the manufacture and transportation of thousands of tons of *extra* equipment — the necessity for the constant abandonment of rear area bases. New forward bases must be constantly built at tremendous costs in labor, materials and shipping, because we have to develop any area capable of supporting our military effort against Japan.

Every weapon, every grain of blood plasma, every tin of rations, must be carried to the outlying bases in the Pacific. It is 6,200 miles from San Francisco to Manila, and instead of being 30 miles or so to the Japanese islands, as the continent of Europe is from England, Manila is another 1,700 miles from Tokyo.

If the situation of the Japanese is hopeless—and we know it is—it is because the most mobile and tremendous organization ever set up supplies our bases: the Transportation Corps of the United States Army, to which all honor must be given when the final accounting is turned in.

"We're just a coupla pikers; sinkers and java is all we ask for or get, but the highway users have just got a $3-billion hand-out from the taxpayers and there's another billion on the fire for the bargemen and the air lines."

* * * *

How to Combat Communism

To anyone who carefully studies the news dispatches as they filter in from the liberated countries, one feature is common to them all. That is the emergence of the Communists as the one compact highly disciplined group which is making an effective bid for domination of the new political order that will arise on the ruins of the old. In Greece, in Poland, in Yugoslavia, in Italy, the phenomenon is plainly observable and in France it is looming into sight. In almost all these regions during the Nazi occupation the Communist groups were the spearheads—the "professionals"—of the resistance movements, especially in Yugoslavia, Greece and France, and they are displaying in their political strategy the same "flexibility" of tactic as they have done in their fighting. Here they push their "ideology," there they suppress it; where they are strong enough they openly assume command, where they are not strong enough for this they will "play with" anybody.

Being entirely uninhibited by what ordinary folk call "moral" considerations this course offers them no difficulties whatever. But wherever they get a footing in any group they work tirelessly and shrewdly so to infiltrate it as gradually to turn it into a collection of reliable fellow-travelers and generally succeed in doing so to a considerable extent. They have done so here, as witness the sponsorship they get for their public appearances. . . .

The "menace" of Communism to civil order consists in the fact that large masses of our people, lacking definite religious convictions and either ignorant or insensitive to "political" principles, even those on which our civil structure rests, offer to it material well adapted to its methods and its purpose.

There is only one defense against this menace and that is complete and continuous publicity. . . . The essence of the needed publicity is in disclosure of *facts*. There are two classes of *facts*. One is *actions* by organizations or individuals; the other is a "Who's Who?" of both. Disclosure of these requires no name-calling; the facts will speak for themselves. In all cases where people organize for socio-political purposes, the public is entitled to know who they are and what they are doing. After that the responsibility is upon public opinion.

—Thomas F. Woodlock in the Wall Street Journal.

Complete Subdivision of C. T. C.

The Western Pacific completes 116-mile project on single track through the Feather River Canyon

THE Western Pacific has installed centralized traffic control on the 116-mile single-track subdivision between Portola, Cal., and Oroville, this territory being in the famous Feather River Canyon which is a natural low-grade route through the Sierra Nevada range of mountains. This subdivision is a part of the 928-mile Western Pacific route between Salt Lake City, Utah, and San Francisco, Cal.; Oroville, the west end of the C.T.C., being 205 miles east of San Francisco.

In the operating arrangements previously in effect between Oroville and Portola, train movements were authorized by timetable and train orders, with no automatic block signaling other than tunnel protection; the passing track switches were operated by hand-throw stands. The new centralized traffic control includes power switch machines at the sidings and semi-automatic signals at these switches to authorize train movements by signal indications, thus superseding timetables and train orders. Intermediate automatic blocks serve as approach signals and to space following trains. The new signaling was placed in service in sections starting at the east end, and the benefits in expediting trains have been progressively more than was expected.

Railroad Through the Canyon

In general, the Feather river flows west and south through deep mountain canyon practically all the way from Portola to Oroville, where the river flows out into a broad valley. Between Oroville and Portola the railroad was built alongside the river in this canyon. Starting at Oroville, with an elevation of 203 ft. above sea level, the grade ascends eastward all the way to Portola, at 4,834 ft. elevation. For the first 12 miles east of Oroville the grade is 0.4 per cent and from there on the grade is 1.0 per cent, compensated for curvature, practically all the way for 100 miles to the east end of Mabie, which is the last siding west of Portola. In some instances the grade is less than 1 per cent for a short distance, but in no case is it more than 1 per cent. Between Massack and Spring Garden, where the valley rises at a grade more than 1 per cent, a loop was built, about one mile in circumference, and at a curvature ranging from 8 deg. to 10 deg. This circle, known as the Williams Loop, makes a gain of 33 ft. in elevation.

Because of the consistently uniform grade of 1 per cent, the locomotives can handle comparatively heavy trains eastward; for example, the Class GS locomotives are rated at 1,900 tons, the Class M-80 at 2,200 tons, and the M-137 at 4,000 tons. Because the grade is descending all the way westward there is no tonnage limit, the train length being limited by the car capacity of the siding. On this 116-mile subdivision there are 31 tunnels ranging in length from 150 ft. to 1,758 ft., with the exception that the tunnel just east of Spring Garden is 7,344 ft. long.

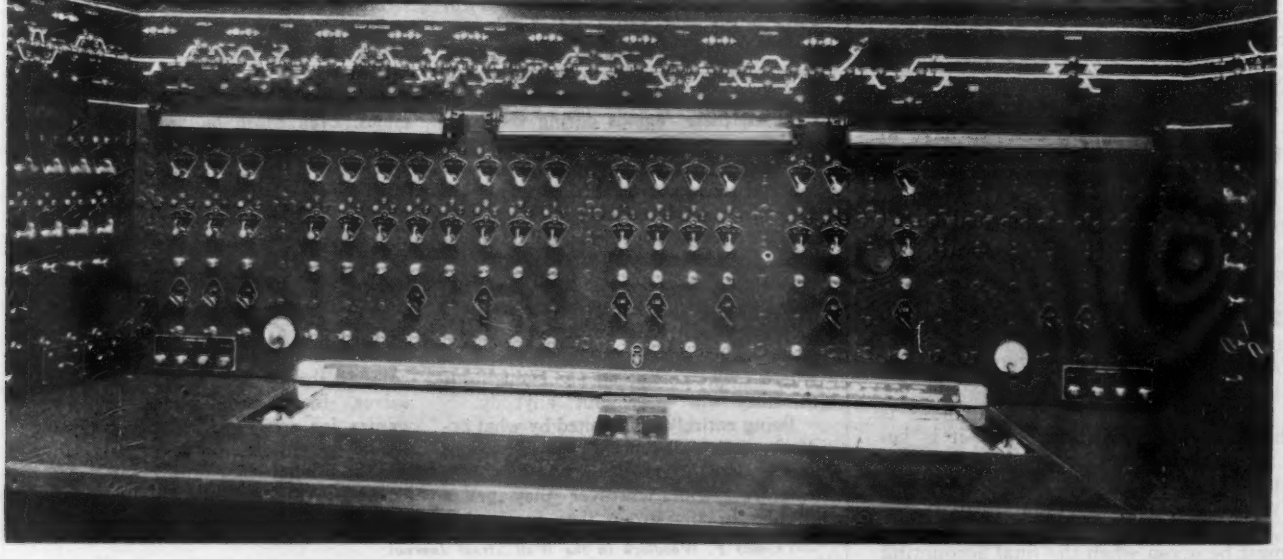
Heavy Curvature

Throughout the entire territory there are numerous curves ranging up to about 6 deg., but there is a considerable number of them also which range between 8 deg. and 10 deg., the maximum being 10 deg., except at a few places where spirals have been extended the central curvature slightly exceeds 10 deg. From a practical standpoint, therefore, the train speeds are limited by curvature more than by grades. For 45 miles between Bloomer and Grays Flat the maximum is 35 m.p.h. for passenger trains and 25 m.p.h. for freight trains. For 5 miles between Bidwell and Bloomer, and 15 miles between Grays Flat and Quincy Junction, the limit is 40 m.p.h. for passenger and 30 m.p.h. for freight. On the remaining 10 miles between Oroville and Bidwell and 33 miles between Quincy Junction and Porotola the limit is 50 m.p.h. for passenger and 35 m.p.h. for freight trains.

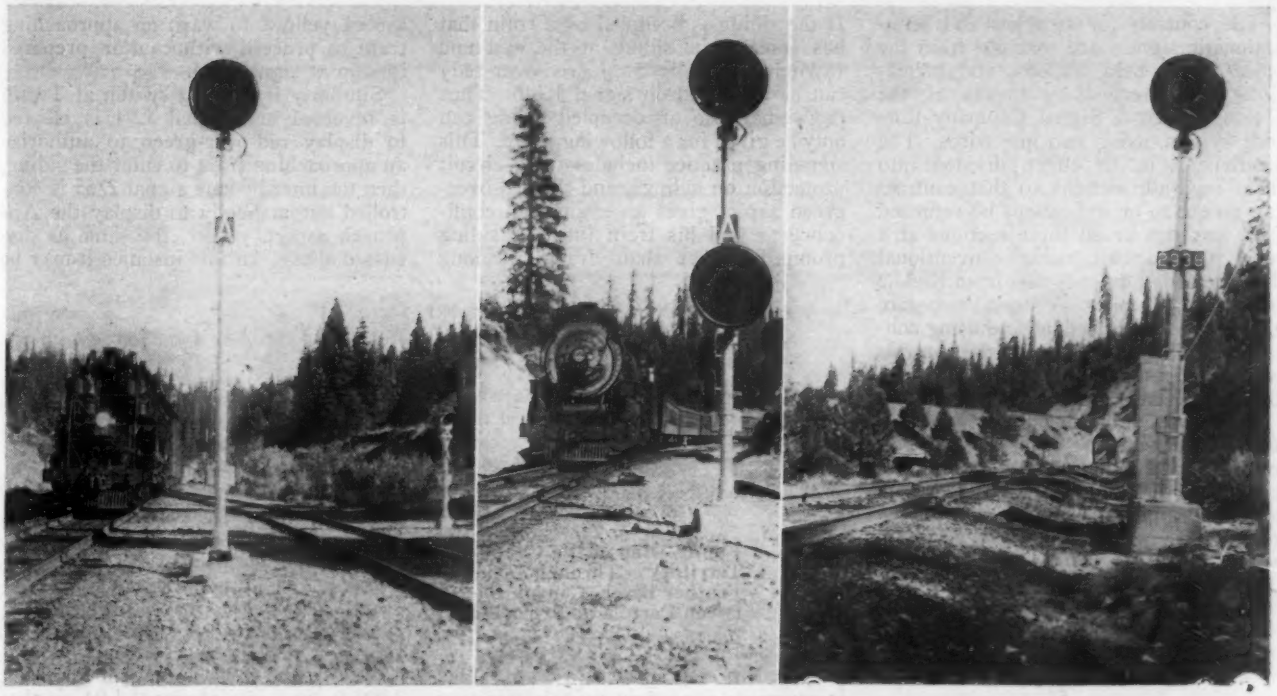
The through passenger trains, which have no scheduled stops, make an average speed of 29 m.p.h. eastbound up the grade and 29.7 m.p.h. westbound on the entire subdivision between Portola and Oroville. The fast freight trains are scheduled to average 17.4 m.p.h. eastbound and 18.8 m.p.h. westbound. Throughout the entire subdivision the track is in excellent condition with good ties, rock ballast and 112-lb. rail.

Number of Train Movements

The local passenger business on the subdivision is handled by one local train each way daily. The through passenger traffic is handled by the "Exposition



The Entire 116 Miles Are Controlled from One C. T. C. Machine at Keddie



(Left)—Westbound Train at East End of Spring Garden
(Center)—Westbound Train at West End of Spring Garden

Eastward Intermediate Signal 2938

Flyer" in each direction daily which has no scheduled stops on the subdivision. As a general rule, for the past two years or more, this train has been operated in two sections each way daily. Extra passenger trains are operated as required, on some days as many as four to six such trains being handled.

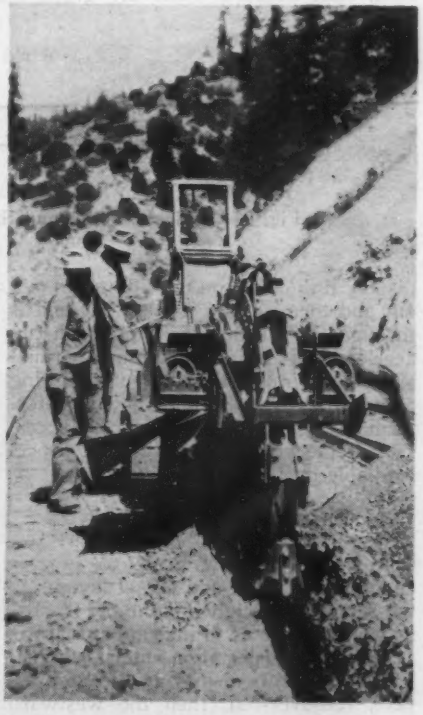
A local freight train is operated on three days each week in one direction and on three days the other direction. Three fast through freight trains are scheduled each direction daily, and extra trains are operated as required. On a typical day there were 5 eastbound and 6 westbound through freights, 4 eastbound passenger and 2 westbound, as well as the 1-way freight, totaling 18 trains. The train movements in this territory range from a minimum of 18 to a maximum of 30 trains per day.

Track Layouts

At Keddie, 40 miles west of Portola, is a junction with a Western Pacific single-track line that extends northward 111 miles to Bieber, Cal., to connect with the Great Northern extending through to Seattle, Wash. The junction switches and signals at Keddie were included in a remotely-controlled interlocking installed in 1932, and when changing over to C.T.C. in 1944 this interlocking was incorporated as a part of the C.T.C. system.

Besides the yard layouts at Oroville, Keddie and Portola there are 25 single sidings for the passing of trains. Five of these sidings hold from 78 to 81 cars, twelve from 85 to 90 cars, seven from 90 to 98 cars, and one holds 102 cars. These sidings are equipped with No. 10 turnouts including 16-ft. 6-in. switch points.

At Portola numerous switching operations, including moves over sections of the main track, are under way a considerable proportion of the time. These moves are of such diverse character that it was not practicable to include this yard territory in the C.T.C. controlled from Keddie. For this reason, for westward train movements, the C.T.C. controlled from Keddie starts at Delleker, which is the west end of the Portola yard. The remainder of the signaling between Delleker and Portola station is automatically controlled. Similarly at Oroville the C.T.C. controlled from Keddie, for eastward trains, starts with signals at the east end of the siding which is east of the station. The remainder of the signaling at Oroville is controlled by a small machine in the office at Oroville station.



Machine Used to Dig Trenches for Cable

C.T.C. Control Machine

The C.T.C. machine is located in an office at Keddie which is 40 miles from Portola, the east end of the C.T.C., and 75.8 miles from Oroville. The illuminated track diagram has a lamp to repeat train occupancy of each station-to-station block, each OS detector section at a power switch, each section of main track opposite a siding, and each siding. Also lamps are provided to indicate power off and operation of detector fences. The indicators for the sidings are a help to the dispatcher in reminding him of trains that are being held. The use of such indicators requires the installation of track circuits on the sidings but these track circuits are used also to control an extra aspect on the head-in signals, thus saving train time. The machine has 52 switch levers for controlling 52 single switches at ends of sidings and 2 levers for controlling one junction switch and a crossover at Keddie. A total of 55 levers control 164 semi-automatic signals. The 38 electric locks on hand-throw switches are controlled by 27 push turn levers in the fourth row which is below the switch and signal levers and starting buttons. A train graph, located in the desk top at the base of the control panel, automatically records the passing of trains at the various OS points which are the short detector track circuits at the power switches.

The controls for switches and semi-automatic signals are sent out from the office to the field stations, and indications are returned by means of the Union Switch & Signal Company time code system, using two line wires. The subdivision is, in effect, divided into three separate sections so that controls can go out to or indications be returned from any one or all three sections at a time. One circuit, using conventional d-c. line codes, extends east from Keddie to Portola, 40 miles. A second two-wire circuit west from Keddie, and using conventional d-c. codes, handles the controls to and indications from the field stations between Keddie and Cresta, 38 miles.

A third set of office coding equipment at Keddie sends out codes at 12 kilocycle carrier current which are superimposed on the same two wires previously mentioned between Keddie and Cresta. At West Cresta these 12 kilocycle codes are converted to ordinary d-c. codes and sent on over two wires to the various field stations between East Pulga and Oroville. Similarly, the indication codes from field stations between Oroville and East Pulga are handled by d-c. codes to West Cresta where they are converted to 18 kilocycle codes which are superimposed on the two wires between West Cresta and Keddie. The 12 kilocycle outgoing control codes or the 18 kilocycle incoming indication codes do not interfere with the conventional d-c. line codes for the Keddie-West Cresta section. In addition, these C.T.C. line wires also carry the telephone circuit which is used for communication between the dispatcher and the telephones at all the field stations which are at the passing track switches.

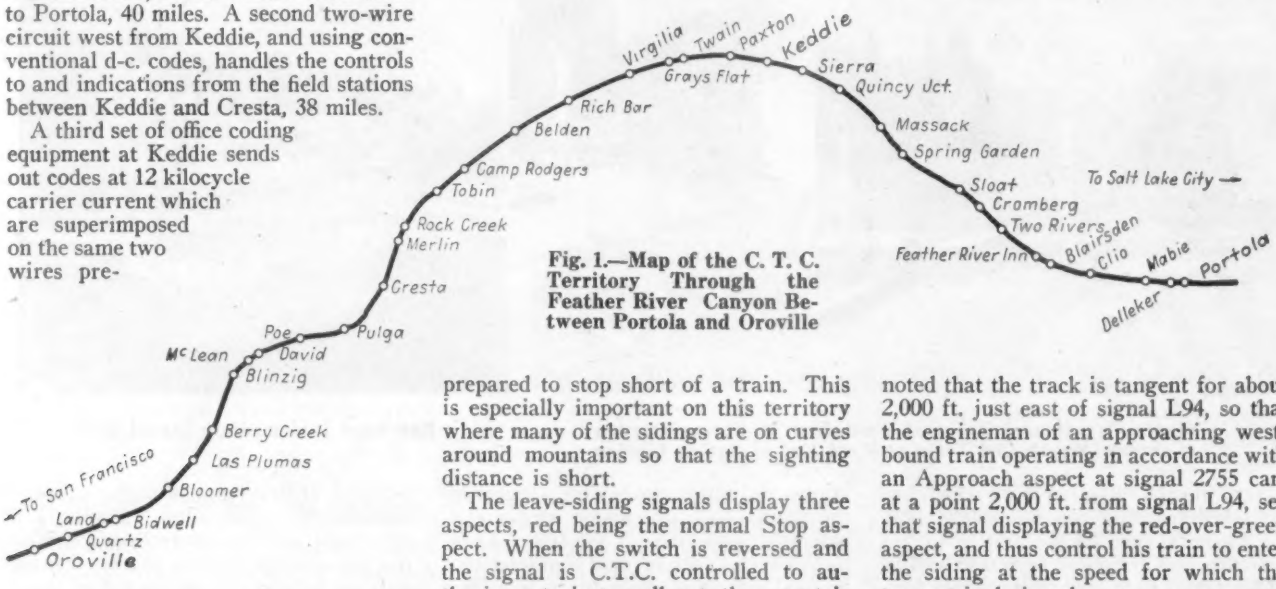


Fig. 1.—Map of the C. T. C. Territory Through the Feather River Canyon Between Portola and Oroville

The layout of the power switches and signals at Spring Garden is shown in Fig. 2, and this is typical of the 25 single sidings on this project. Each station-entering signal, such as signal R146 at the west end of Spring Garden, has two searchlight heads. The upper operates to display red, yellow or green, over red in the bottom unit, to govern train movements on the main track with the switch normal. With the siding switch reversed, and a red in the top unit, the bottom unit displays a green to govern a train movement into the siding with the siding unoccupied, but, if the siding is occupied by a preceding train in the same direction, the aspect is yellow in the lower unit under a red in the upper. If the siding is occupied by a train that has entered the siding at the east end (switch-147) only Stop (red-over-red) can be displayed on signal R146. Thus the signal into an occupied siding can only be given for a following move. This signaling practice includes track circuit protection on sidings, and the red-over-green aspect gives an engineman confidence to pull his train into the siding promptly rather than dragging along prepared to stop short of a train. This is especially important on this territory where many of the sidings are on curves around mountains so that the sighting distance is short.

The leave-siding signals display three aspects, red being the normal Stop aspect. When the switch is reversed and the signal is C.T.C. controlled to authorize a train to pull out, the aspect is yellow if only one automatic block ahead is unoccupied and the second one is occupied by a train of the same direction; or the aspect is green if two or more automatic blocks are unoccupied. This use of the green aspect, as compared with only yellow as the best aspect, saves train time because when the green is displayed the train on the siding can pull out and then as soon as the rear end is through the turnout, the engineman can accelerate his train to maximum permissible speed promptly without dragging along prepared to stop at the first intermediate signal, which would be necessary if the yellow were the best aspect available on the leave-siding signal.

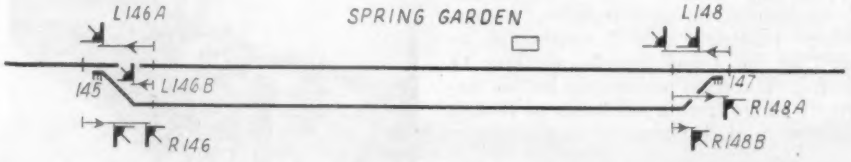


Fig. 2.—Typical Switch and Signal Layout at Spring Garden

Intermediate Signals

Reference is now made to Fig. 3, showing the track and signal layouts in the sections through Paxton and Twain, as well as symbols to indicate curvature. If the westward station-entering signal L94 at Twain is displaying the Stop aspect, red-over-red, then the westward intermediate signal would be controlled automatically to display an Approach aspect, yellow, to warn an approaching train to proceed with caution prepared to stop at signal L94.

Similarly if the east switch at Twain is reversed and signal L94 is cleared to display red-over-green to authorize an approaching train to enter the siding, then the intermediate signal 2755 is controlled automatically to display the Approach aspect, yellow, the same as discussed above. In this instance it may be noted that the track is tangent for about 2,000 ft. just east of signal L94, so that the engineman of an approaching westbound train operating in accordance with an Approach aspect at signal 2755 can, at a point 2,000 ft. from signal L94, see that signal displaying the red-over-green aspect, and thus control his train to enter the siding at the speed for which the turnout is designed.

In contrast, attention is directed to the symbols indicating that the track is on curves practically all the way from eastward intermediate signal 2756 to station-entering eastward signal R96 at the west end of Paxton, and of special interest is the fact that there is a long 10-deg. curve in the immediate approach to signal R96. Under these circumstances if an eastbound train encountered an Approach aspect (single yellow) on eastward intermediate signal 2756, the engineman would have no choice other than to stop short of station-entering signal R96, because the curves are so sharp and the mountain sides so high that he cannot get a view of that signal until he is within a couple of hundred feet of it.

Therefore, in order that an engineman of an eastbound train may be prepared to bring his train up to and through the turnout at the speed for which it is designed, a second lamp unit is mounted on the mast of signal 2756, 7 ft. 6 in. below the center of the searchlight signal unit. This lower unit is normally extinguished, but if station-entering signal R96 at Paxton is display-

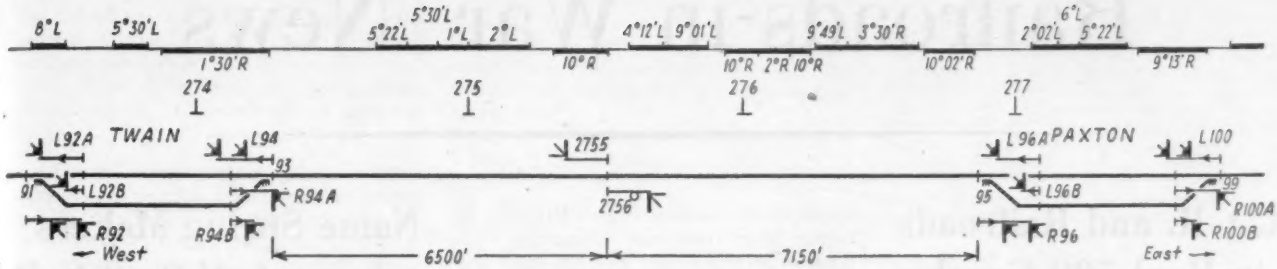


Fig. 3.—Track and Signal Plan Including Territory Between Twain and Paxton

ing the aspect red-over-green to direct a train to enter the unoccupied siding over the switch reversed, then the extra unit on intermediate signal 2756 is lighted to display yellow under a yellow in the top unit. Thus the engineman of an eastward train, when encountering this aspect, has advance information so that he can bring his train right up to and through the turnout with entire confidence. This feature avoids unnecessary train stops as well as reducing the time for trains to move up to and into the siding. Similarly the extra aspect is provided on other distant signals where the curvature obstructs the view in approach to station-entering signals.

An important factor contributing to the practicability of this practice is that the sidings are equipped with track circuits so that if the siding at Paxton, for example, were occupied, then the best aspect that could be displayed for a second following train to enter would be red-over-yellow. In such an instance, the best aspect that could be displayed on the eastward intermediate signal would be a single yellow. Then the engineman of an eastbound train would thereby be required to operate his train prepared to stop at signal R96. The practice of using a normally-extinguished single yellow lamp for the lower unit is practicable because if either yellow lamp is burned out a single yellow is more restrictive than two yellows.

Indicators on Motor Cars

This project includes an interesting application of modern equipment known as coded track circuits, by means of which the automatic track circuit controls of the signals, to display the aspects red, yellow or green, are accomplished by different codes such as 75 or 180 times each minute in the rails rather than by using line wire circuits for this purpose to select between the yellow and the green aspects. Thus no line wires are required for the local A.P.B. circuits for the signals, a feature which is applicable from a practical standpoint only in C.T.C.

A novel feature is that these codes in the rails are used also to control indicators on the track cars used by maintainers and track crews to warn these men of the approach of trains. Under normal conditions with no train in a station-to-station block and no C.T.C. controlled signal cleared for a train to enter such a block, the indicator lamp on a motor car in that block displays a steady-burning indication so that the maintainer or track foreman on a car can keep moving with confidence. When the dispatcher sends out a control to clear a signal for a train to enter the station-to-station block the indication lamp on the motor car flashes in accordance with the code in the track circuit in which the motor car is then running, i.e., either 75 or 180 times each minute. Also a gong on the car is sounded. Knowing his location with respect to the ends of the station-to-station block the maintainer can figure out about how much time he has to get his car off the track. If he should delay such action until a train has entered the track circuit in which he is running, then the indicator lamp on his car would be extinguished and gong sounded.

Eastbound Train at East End of Keddie

Constructed by Railroad Forces

The major items of signaling equipment for this project were furnished by the Union Switch & Signal Company. The field construction was handled by Western Pacific forces, under the general jurisdiction of T. L. Phillips, chief engineer, with E. P. Peterson, assistant engineer in charge of field forces. L. B. Carter is signal construction superintendent. J. R. Coles, signal engineer, in charge of the plans and engineering during the earlier stages of this project, retired at his own request in May, 1944, and on June 1, 1944, was succeeded by H. W. Dunn.

A new idea on signaling construction was the use of a trench digging machine for digging the trenches for the underground cables. This machine is mounted on caterpillar treads, and the same gasoline engine which operates the machine is used also to propel it. The machine could be driven up a pair of planks on to a push car to be handled from one location to another. The machine was used satisfactorily in clay, gravel and conglomorate with rocks up to 3 in. in diameter.

Railroads-in-War News

A.A.R. and Railroads to Pool 500 Coaches

Plan calls for movement from staging areas to centers for "redeployment"

Officers of the Association of American Railroads and of several railroads met in Chicago on June 14 to complete plans for the establishment of a pool of 500 passenger coaches as a means of speeding up the movement of troops returning from the battlefields of Europe. Following the meeting it was announced that all lines will contribute to the pool which will likely be increased as the number of returning men rises.

Under present arrangements the pool will be utilized in moving men from staging areas to "redeployment" centers and this involves, under War Department orders, moving men from shipside to staging areas where they are to be grouped for further movement to centers where they will be either furloughed or discharged. The further movement of service men either discharged or furloughed will be by individual railroads. In this connection it has been stipulated that coaches will be so employed when a specific trip requires no more than 24 hours, and Pullman cars will be used for journeys of longer duration.

The coach pool will be supervised by E. F. Bilo, manager, passenger section of the A. A. R. Car Service division, and Arthur H. Gass, manager of the military transportation section.

Potato Minimum Load Raised; I. C. C. Service Orders

The Office of Defense Transportation on June 15 announced an increase in the minimum loading required for early potatoes, in view of the "bumper crop" and the limited supply of refrigerator cars. In previous years growers and shippers have been allowed to load early potatoes on the basis of a 30,000-lb. minimum carload. This year, effective June 12, the minimum for shipments from California points has been increased to 40,000 lb., and from southern and eastern states, effective June 16, to 36,000 lb.

The O. D. T. explained that about 25,000 fewer cars will be required to move the estimated production of 64 million bushels of early potatoes under the new minimum weight requirements, as compared to those formerly allowed. This saving in car movement, involving also the delivery of empty refrigerator cars to the producing areas, is possible through the "patriotic wholehearted support" of potato growers and shippers, according to the O. D. T. statement.

The icing restrictions on refrigerator car shipments of potatoes from California, effective under Interstate Commerce Commission Service Order No. 308, have been modified in the revised version of that order, effective June 18 and scheduled to expire July 31. The prohibition against preicing of cars to be loaded with potatoes is extended to apply to shipments originating in Arizona. Certain exceptions have been added with respect to the standard icing and ventilation clauses in the original order, applying only to potatoes loaded in California. Initial icing only, in lieu of standard refrigeration, is allowed on shipments to dehydration plants in Idaho, while shipments to California ports of California potatoes in crates, if consigned to the Army or Navy, may be accorded initial icing only.

Second Amended General Permit No. 2 under Second Revised Service Order 300, effective June 11 through July 31, unless otherwise ordered, allows initial icing and one reicing in transit on potatoes originating in Florida, but continues the icing restriction on those originating in Georgia or South Carolina to initial icing only after loading.

The commission's Service Order No. 315, effective June 14 through June 29, unless otherwise ordered, authorized the Illinois Central to reroute traffic routed over its line between Aldridge, Ill., and Gale, on account of carrier disability resulting from flood conditions.

Truman Order Nullifies Court Ruling in T. P. & W. Case

Acting to "remove all doubt" as to the authority of the director of the Office of Defense Transportation with respect to his possession, control, and operation of the Toledo, Peoria & Western, President Truman on June 15 issued an executive order ratifying the O. D. T. director's past activities on the railroad and directing that he continue in possession of the property. Government operation of the road, the order said, continues to be "essential" in order "to assure successful prosecution of the war."

The order is Executive Order 9572. It was issued to clarify the situation created by the recent decision of the Federal District Court at Chicago, holding that O. D. T. had been illegally in possession of the road since January 18, 1944, when an executive order terminated the brief period of War Department operation of railroads which was brought on by the strike threat of December, 1943. As noted in the *Railway Age* of May 26, page 952, the court held that the general termination order, releasing all railroads under government control, applied to the T. P. & W. which should have been returned to its owners "in the absence of further action by the President of the United States." The T. P. & W. has been under government control since March 21, 1942.

Name Spring Makers in an Anti-trust Suit

Biddle and Berge allege price fixing, collusive bidding and patent monopoly

A civil suit charging 10 manufacturers, a patent holding company, and the Railway & Industrial Spring Association with conspiracy to suppress competition in the manufacture and sale of railway springs and spring plates, in violation of the Sherman Anti-trust Act, was filed June 20 by the Department of Justice in the federal district court at Hammond, Ind., according to Attorney General Biddle.

The Defendants — The defendants named in the suit, in addition to the trade association, are: American Locomotive Company, New York; American Spiral Spring & Manufacturing Company, Pittsburgh, Pa.; American Steel Foundries, Hammond, Ind.; Baldwin Locomotive Works, Eddystone, Pa.; Crucible Steel Company of America, New York; Fort Pitt Spring Company, McKees Rocks, Pa.; Pittsburgh Spring & Steel Company, Pittsburgh; Union Spring & Manufacturing Company, New Kensington, Pa.; Symington-Gould Corporation, Rochester, N. Y.; Universal Railway Devices Company, Chicago; and Pittsburgh Steel Foundry Corporation, Glassport, Pa.

Assistant Attorney General Wendell Berge, in charge of the department's Anti-trust Division, said the suit was based on the department's position that "free and open competition" in the manufacture and sale of railroad equipment and supplies must be maintained, and that "artificially high prices" for railway equipment and supplies have resulted "necessarily" in higher railroad rates. Springs and spring plates represent an important cost item in the construction and maintenance of cars and locomotives, he remarked, and sales of such equipment by the defendant companies to railroads and equipment builders in recent years have amounted to some $10 million annually.

Says Customers Were Allocated—It was explained that the complaint charges that the defendants have "combined and conspired" to suppress competition in the manufacture and sale of railway springs and spring plates "by fixing uniform prices at which they are sold and by allocating customers among themselves." It is charged that members of the Railway & Industrial Spring Association have held monthly meetings in Pittsburgh at which "they agreed to allocate orders for the purchase of such equipment among their respective companies and otherwise to suppress competition."

It is further alleged in the complaint that the defendants have for many years submitted collusive bids to railroads and car builders for springs and spring plates and have agreed in advance which defendant should submit the lowest bid in each instance.

"Tie-in" Arrangement—The complaint also charges that the defendants have agreed not to manufacture or sell spring plates in competition with a patented "Universal spring plate" and have further agreed to a "tie-in" arrangement whereby the sale of a patented coil-elliptic spring device could be made only when it was equipped with an unpatented part manufactured solely by one of the defendants.

According to the complaint, the effect of this alleged conspiracy has been to establish and maintain artificial prices for springs and spring plates, unlawfully to restrict competition in their sale and manufacture, unlawfully to extend a patent monopoly, and unlawfully to restrict channels of distribution of both patented and unpatented articles.

The complaint seeks a permanent injunction to prevent further price fixing and allocating of customers by the defendants, the dissolution of the Railway & Industrial Spring Association, and an injunction against further performance of licenses and sub-licenses entered into by the defendants.

The case is in charge of Arne C. Wiprud, George B. Haddock and Robert W. Strange, special assistants to the attorney general, under the direction of Mr. Berge.

"Parking" of Cars Should Stop, Says Kendall

Chairman Warren C. Kendall of the Car Service Division has asked railroad transportation officers to review present practices and issue any necessary instructions with a view to discontinuing all holding or "parking" of freight cars for prospective loading. Under existing car-supply conditions, Mr. Kendall said, it is "impossible to justify or condone" such practices, "regardless of the urgency of anticipated requirements."

He was prompted to make the appeal in a June 18 circular by reports from C. S. D. agents who have been turning up instances "of empty cars placed but not ordered and excessively delayed, while not subject to demurrage rules and charges." This condition, Mr. Kendall added, "has frequently been found in connection with unordered empties placed on industrial interchange tracks."

Transportation Shortage Slows Dutch Rehabilitation

Due to the destruction of waterways and railways between the Ruhr and western Holland, some 6,000,000 tons of coal still lie above ground in the German Ruhr awaiting delivery to power stations to complete the restoration of disrupted Netherlands' public utilities.

According to advice of the Netherlands Information Bureau, in New York, the Dutch coal mines in the southern province of Limburg, while they are doing all possible to build up a stockpile for winter, cannot supply a regular flow of coal until the Maas river has been cleared of mines and obstructions.

"In order to ease the power shortage in Western Holland," the bureau reports, "officials are making use of relay stations to supply current from power stations in the south and in Belgium." It adds that investigations are under way to determine the possibility of exploiting sources of electricity in German areas contiguous to Holland.

Meanwhile, the transportation shortage has forced the Civil Affairs Administration to requisition all private vehicles for public use.

Materials and Prices

The following is a digest of orders and notices that have been issued by the War Production Board and the Office of Price Administration since June 12, and which are of interest to railways:

Circuit Breakers—General Limitation Order L-300, covering production and distribution of small air circuit breakers has been revoked. W. P. B. cautioned, however, the revocation of the order does not affect any liabilities incurred for previous violation of the order nor any action taken by W. P. B. under the order.

CMP Regulations—Field offices of the War Production Board have been instructed not to assign preference ratings or make allotments of controlled materials under PR-25 beyond July 1. This action has been taken, W. P. B. said, in anticipation of an amendment of PR-25, which will eliminate all such assistance under the order effective July 1. Previously, the order permitted assistance for non-military production even above the minimum essential production schedule by W. P. B., if local conditions permitted and the production did not interfere with the war effort.

Fire Fighting Equipment—Applications on Form WPB-541 for preference ratings to purchase fire extinguishers and portable and stirrup pumps no longer are being accepted by the W. P. B. Since these items are now in comparatively good supply, it is expected that persons who need them will be able to buy them in the open market without preference ratings. However, persons who are eligible to use MRO ratings, as provided in PR-3, may use those ratings.

Steel Sheets—Steel producers' order books for hot rolled pickled and cold rolled sheets are filled up through the third quarter of 1945 with validated CMP orders, the Steel Sheet and Strip Industry Advisory Committee members reported recently. However, this is not the true picture of the probable availability of sheet steel during the third quarter inasmuch as military cutbacks have not been reflected at the mill level, industry members and W. P. B. officials agreed. It is expected that the present situation will change substantially in the next three or four weeks, they said.

Wrought Iron—Railroads will be among the principal beneficiaries of an increased supply of wrought iron resulting from recent heavy cutbacks in Navy orders. These cutbacks have changed the recent tight supply situation in that metal virtually overnight to one of a relative ample supply, W. P. B. said. The increase in wrought iron for civilian needs directly reflects cancellations by the Navy Department for large tonnages of chains.

Deliveries of wrought iron plates, forging billets, pipe and tubing, staybolt bars and chain iron can now be made with resonable promptness, W. P. B. said, but deliveries will still be delayed in some instances if purchasers insist upon the product of a particular mill or brand. Delays will continue in the deliveries of special wrought iron shapes and bars of very small size because the demand for these particular products does not warrant carrying large stocks in warehouses. Since orders for this type of material are usually issued for small quantities, the producer delays rolling until sufficient orders are accumulated to warrant the operation of a mill equipped to roll special shapes and small-size bars. Production of wrought iron has averaged about 160,000 tons annually during the last three years.

Zinc—All restrictions on use of zinc have been removed through the revocation of Order No. M-11-b and Direction No. 1 to the order. The effect of this action will be merely to give zinc purchasers a "hunting license," as zinc continues in tight supply. Existing allocation controls on slab zinc will be retained. Direction No. 1 to Order No. M-11-b increased the number of permissive uses of zinc for coatings other than paint, in the second and third quarters of 1945. Direction No. 3 to Order No. L-103-b which restricted the use of zinc for manufacturing home canning closures, has been revoked.

Prices

Cast Iron Soil Pipe—Ceiling prices of cast iron soil pipe and fittings have been increased $5 a ton at the mill level. The increase, which represents a rise of about 7¼ per cent over existing ceilings, was granted to meet the cost increase resulting from the five-cents-an-hour wage increase just granted to foundrymen in this industry, and from raw materials cost increases. Amendment No. 3 to RPS-100 is effective immediately.

Ice—A new method of adjusting individual maximum prices for railroad car-icing ice has been provided by Amendment 10 to MPR-154, effective June 18. Sellers and purchasers are permitted to enter into agreements for upward adjustments in maximum prices to cover the seller's increases in labor costs in the most recent twelve months over his normal fiscal year ending nearest to April 30, 1942. The amount of the adjustment, however, is limited to 20 per cent of the April. 1942 ceiling price or $1 a ton, whichever is lower.

In such adjustments, the purchaser must agree to absorb the proposed increases without reflecting it in his own maximum charges for refrigerated transportation, services or sales.

Applications for price adjustments must be filed with the Transportation and Public Utilities Division of the O. P. A., Washington 25, D. C. Such adjustments become effective automatically 20 days after receipt of the application unless the request ceiling price is specifically disapproved or modified, or additional information from the applicant is requested by O. P. A. during that time.

The present critical food supply situation makes essential the provision of adequate ice supplies for the preservation of perishable food products in transit, O. P. A. said. Normally around 20 per cent of all ice is used for food preservative purposes. Previously ceiling prices for car-icing ice generally were the highest prices charged in April, 1942, or those existing under firm contracts entered into before October 1, 1941. As a whole, they are the lowest prices of any classification of sales in the industry.

Because of heavy demand for ice by most classes of users, higher car-icing ice prices are required in some cases to prevent diversion of supplies from the car-icing field to classes of users with higher ceilings. Establishment of a flat maximum price of $3 per ton for car-icing ice also was announced. O. P. A. said only a few sellers have ceiling prices of less than $3 per ton, and they may increase their ceiling prices up to this figure without application for an adjustment to the price agency. They must, however, notify their O. P. A. district offices of the change in their maximum prices.

Lodgepole Pine Poles—Dollar-and-cent ceiling prices for non-pressure preservative butt-treating and framing of lodgepole pine poles have been established by Amendment No. 3 to MPR-555, effective June 18. Prices are now in line with maximum prices already established for butt-treated poles of other species, and are in the form of additions that may be made to ceiling prices for untreated poles. The ceilings for some of the more popular sizes, f. o. b. railroad loading-out point or towable waters nearest the mill or point of production in the normal direction of delivery to destination, are: For treating a 30-foot Class 5 pole, $2.95 per pole; Class 6, $2.55; Class 7, $2.30; for treating a 35-foot Class 5 pole, $3.60 per pole; Class 6, $3.10; Class 7, $2.75.

For framing a 30-foot Class 5, 6 or 7 poles, 11 cents per pole for roofing, and eight cents per gain; for framing a 35-foot Class 5 pole, 18 cents per pole for roofing and eight cents per gain; for framing a 35-foot Class 6 or 7 pole, 15 cents per pole for roofing and eight cents per gain.

GENERAL NEWS

RR Trucks Can Run Despite Competition

Coordinated service allowed if I. C. C. has evidence of public benefit

The Supreme Court of the United States this week decided two cases involving the basis upon which the Interstate Commerce Commission authorized railroads or their subsidiaries to operate motor trucks as auxiliary to and supplemental of rail operations and in competition, so far as the limitations of the certificates permit, with independent common carrier truckers. In one case—*I. C. C.* vs. *Parker*—the commission's action was upheld by a majority of the court; in the other case—*American Trucking Associations* vs. *I. C. C.*—the commission was upheld insofar as the issues were like those in the *Parker* case, but the court went on to say that the commission and the joint boards involved in the proceedings should have admitted certain "competent and material evidence" which was excluded, and therefore ruled that the certificates were erroneously issued.

Truckers Oppose Competition—The *Parker* case grew out of an application of the Willett Company of Indiana, a wholly-owned motor carrier subsidiary of the Pennsylvania, for certificates of convenience and necessity covering extensions of its truck operations along the Pennsylvania's lines from Fort Wayne, Ind., to Mackinaw City, Mich. The commission issued such certificates, limiting Willett's operations to service auxiliary to or supplemental of railroad service, subject to the key point restriction frequently applied under such circumstances, and forbidding service to any point not a station on the railroad.

Parker Motor Freight, a common carrier operating in the same territory, and the American Trucking Associations contested this action, and the federal district court enjoined the enforcement of the commission's order on the ground that there was no substantial supporting evidence, and no proof that the "present highway common motor carrier transportation service by certified carriers was or would be inadequate." In an opinion by Justice Reed, with Justices Douglas, Black and Rutledge dissenting, this lower court finding was reversed.

Pointing out that Willett's certificate strictly limited its operation to service supplemental to rail operation, Justice Reed observed that, "on adequate evidence, the commission found that the motor service sought was of a different character from the existing motor service and not directly competitive or unduly prejudicial" to the existing carriers, and hence was within the commission's power to approve. "The public is entitled to the benefits of improved transportation. Where that improvement depends in the commission's judgment upon a unified and limited rail-truck operation which is found not 'unduly prejudicial' to motor carrier operations, the commission may authorize the certificate even though the existing carriers might arrange to furnish successfully the projected service."

I. C. C. the Judge of Public Need—Parker had argued that, since there had been no evidence offered as to the inadequacy of the existing truck operations to meet the railroad's need for coordinated service on the routes involved, there was a failure of proof as to the need for the new service. To this Justice Reed remarked that the commission "is in a position to determine by its administrative discretion whether the projected service may be better rendered by the railroad or existing motor carriers. In the absence of power to compel coordination between the modes of transportation and in the presence of the probable gains in operative efficiency from unified management, we think the commission, in view of the limitations on the railroad's motor service, is entitled to conclude that the public will be better served by the rail operation than by use of the available motor carrier facilities."

Justice Douglas, in the dissenting opinion in the *Parker* case, however, took the position that the majority's decision allows the commission to decide such applications on the basis of *railroad* convenience and necessity rather than *public* convenience and necessity. If any other applicant than a railroad came before the commission for a certificate to serve this precise territory, he remarked, that applicant would have to

(*Continued on page 1121*)

Frisco Issues Timetable on 24-Hour Plan

The Frisco has issued for military personnel a special timetable of its principal trains in which arrival and departure times are shown on 24-hour timing—standard in the armed services—and avoiding the ordinary "p.m" and "a.m." designations.

This is to say, all times shown as "p.m." in the customary timetables are shown in this one with 12 added to them, and zeros are used so that each time designation is given invariably as a combination of four digits. A diagram in the folder explains the system for the benefit of civilians who may not be familiar with it.

Holds Train-Limit Law Unconstitutional

Supreme Court finds Arizona statute burdens interstate commerce

With two justices dissenting, the Supreme Court on June 18 held the Arizona train-limit law to be unconstitutional because it results in an undue burden on interstate commerce. The majority opinion in the case—*Southern Pacific vs. Arizona*—was by Chief Justice Stone, while separate dissents were expressed by Justices Black and Douglas.

Restraint on Commerce—The case came to the Supreme Court after the Arizona Supreme Court had reversed a state superior court judgment in favor of the railroad which was handed down in 1940. Two questions were involved, according to the Chief Justice: (1) whether Congress has restricted the power of the states to regulate the length of interstate trains as a safety measure; and, if not, (2) whether the state law contravenes the commerce clause of the federal Constitution. The state supreme court had found that Congress had not by law restricted the power of the state to restrict the length of trains and then had sustained the act as a safety measure within the state's police power. The Supreme Court was not disposed to question the first part of this finding, and it devoted its attention mainly to the effect of the law on interstate commerce.

In the majority opinion it was noted that the Interstate Commerce Commission, under section 1 of the Interstate Commerce Act, has the power, in emergency, to regulate car service and the movement of traffic, and that in the exercise of that power the commission on September 15, 1942, had issued Service Order No. 85, suspending for the duration of the war state train-limit laws. The authority of the commission in this respect is currently in litigation, but the order was not in effect at the time the Arizona case was instituted, and has no bearing on it, the majority said, except that it might be contended that the grant of power to the commission to suspend such laws operated to supersede the state statute before the order was issued. The majority held that section 1 does not of itself curtail state power in this respect.

Longer Trains "Standard Practice"—Through the years legislation and court decisions have developed a system for the regulation of interstate commerce, the Chief Justice observed, in which the state retains wide scope for regulation of matters of local concern, even though interstate commerce is in some measure affected, pro-

vided such regulation does not materially affect the free flow of commerce across state lines nor interfere with it where uniformity of regulation is a matter of "predominant national concern." Thus the present case requires a determination of the relative weights of the state and national interests involved.

The record shows, said the opinion, that operation of trains of more than 14 passenger cars and 70 freight cars (the maximum allowed under the Arizona law) is "standard practice over the main lines of the railroads of the United States, and that, if the length of trains is to be regulated at all, national uniformity in the regulation adopted, such as only Congress can prescribe, is practically indispensable to the operation of an efficient and economical national railway system."

Continuing, the Chief Justice observed that "the unchallenged findings leave no doubt that the Arizona train limit law imposes a serious burden on the interstate commerce" conducted by the railroads serving that state. "It materially impedes the movement of . . . interstate trains through that state and interposes a substantial obstruction to the national policy proclaimed by Congress, to promote adequate, economical and efficient railway transportation service."

No Aid to Safety—The opinion then turned to the argument that the law was a valid exercise of the police power as a safety measure designed to curtail injuries to employees resulting from so-called slack action accidents. "The trial court," Chief Justice Stone pointed out, "found that the Arizona law had no reasonable relation to safety, and made train operation more dangerous. Examination of the evidence and the detailed findings makes it clear that this conclusion was rested on facts found which indicate that such increased danger of accident and personal injury as may result from the greater length of trains is more than offset by the increase in the number of accidents resulting from the larger number of trains when train lengths are reduced. . . . The decisive question is whether in the circumstances the total effect of the law as a safety measure in reducing accidents is so slight or problematical as not to outweigh the national interest in keeping interstate commerce free from interferences which seriously impede it."

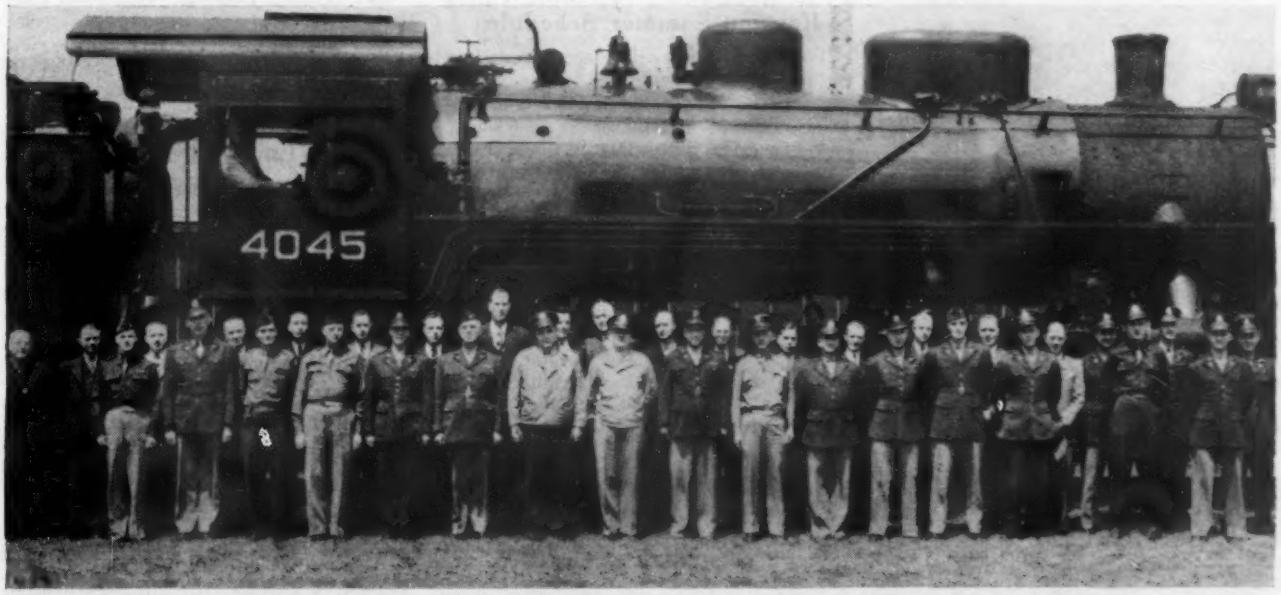
The majority's opinion on this point was "that the state does go too far. Its regulation of train lengths, admittedly obstructive to interstate train operation, and having a seriously adverse effect on transportation efficiency and economy, passes beyond what is plainly essential for safety since it does not appear that it will lessen rather than increase the danger of accident. . . . The state interest cannot be preserved at the expense of the national interest. . . . To this the interest of the state here asserted is subordinate."

Highways No Parallel—Turning briefly to a consideration of the relationship between the train-limit law and state regulation of the weight and width of motor vehicles passing interstate over state highways, the Chief Justice remarked that the court has been at pains to point out that "there are few subjects of state regulation affecting interstate commerce which are so peculiarly of local concern as is the use of the state's highways. Unlike the railroads local highways are built, owned and maintained by the state or its municipal subdivisions. The state is responsible for their safe and economical administration. Regulations affecting the safety of their use must be applied alike to intrastate and interstate traffic. The fact that they affect alike shippers in interstate and intrastate commerce in great numbers, within as well as without the state, is a safeguard against regulatory abuses. Their regulation is akin to quarantine measures, game laws, and like local regulations . . . with respect to which the state has exceptional scope for the exercise of its regulatory power, and which, Congress not acting, have been sustained even though they materially interfere with interstate commerce."

Justice Black, in a long dissenting opinion, referred to controversies over the relative virtues and dangers of long trains which have engaged the carriers and brotherhoods for many years, and called attention to the action of the Senate interstate commerce committee in 1937 recommending a national 70-car train limit law, based on hearings in which the brotherhoods were conspicuous participants.

Black Backs Union Claims—Turning then to the specific issues discussed in the majority opinion, Justice Black remarked that, as long ago as 1913, Justice Hughes pronounced for the court "the settled principle that, in the absence of legislation by Congress, the states are not denied the exercise of that power to secure safety in the physical operation of railroad trains within their territory, even though such trains are used in interstate commerce." Congress could have established a uniform law as to the length of trains if it chose, he suggested,

* * *



Officers and Civilians, All Former Railroaders, Serving with the Army Transportation Corps, Marietta (Pa.) Transportation Corps Depot

Front row, left to right: Col. F. G. Smith (P. R. R.); Lt. Col. J. C. Glenn (C. of N. J. and Rdg.); Majs. C. I. Cavenaugh (A. C. L.); E. L. Jones (P. R. R.); A. B. Amos (A. C. L.); D. H. Minnich (P. R. R.); C. C. Schwine, Jr. (So. Ry.); Capts. P. R. Dawson (B. & O.); A. L. Huber (N. Y. C.); D. R. Spencer (C. M. St. P. & P.); A. H. Ruttenbush (P. R. R.); A. S. Robertson (Montour); 1st Lts. K. W. Bridwell (Ry. Exp.); M. H. Phillips (N. Y. C.); J. W. Woods (A. T. & S. F.); 2nd Lt. F. Cimusz (N. Y. C.); *Second row, left to right*: Messrs. W. E. Foster (P. R. R.); V. B. Coyle (B. & O.); W. H. Ensminger (P. R. R.); C. G. Foster (P. R. R.); F. L. Hennessey (C. & N. W.); R. B. Craine (P. R. R.); D. Borland (C. Gr. W.); L. Sullivan (Gr. No.); G. Lindh (Read.); F. J. Hanlon (P. R. R.); R. A. Rishell (P. R. R.); W. Olinger (P. R. R.); N. Hosea (N. Y. C.); J. M. Morris (P. R. R.); L. W. Scatchard (N. & W.); E. S. Merritt (P. R. R.); A. C. Pumphrey (P. R. R.); 2nd Lts. E. W. Steuber (P. R. R.); Joe Garrison (A. T. & S. F.); and C. E. Reasoner (M. K. T.)

but it did not elect to do so, leaving such action within the legislative discretion of the states.

As Congress has not enacted a uniform regulation, the dissent continued, the state law should not be ruled against on the ground that it cannot make such regulation uniform. "We are not left in doubt as to why, as against the potential peril of injuries to employees, the court tips the scales on the side of 'uniformity.' For the evil it finds in a lack of uniformity is that it (1) delays interstate commerce, (2) increases its cost and (3) impairs its efficiency. All three of these boil down to the same thing, and that is that running shorter trains would increase the cost of railroad operations. The 'burden' on commerce reduces itself to mere cost, because there was no finding . . . that by the expenditure of sufficient sums of money, the railroads could not enable themselves to carry goods and passengers just as quickly and efficiently with short trains as with long trains. Thus the conclusion that a requirement for long trains will 'burden interstate commerce' is a mere euphemism for the statement that a requirement for long trains will increase the cost of railroad operations."

Sees Money Winning Over Persons—Continuing, Justice Black remarked that "the court's action in requiring that money costs outweigh human values is sought to be buttressed by a reference to the express policy of Congress to promote an 'economical national railroad system.' I cannot believe that if Congress had defined what it meant by 'economical,' it would have required money to be saved at the expense of the personal safety of railway employees.... The record in its entirety leaves me with no doubt whatever that many employees have been seriously injured and killed in the past, and that many more are likely to be so in the future, because of 'slack movement' in trains."

Justice Douglas expressed the opinion, in his dissent, that the Arizona law was entitled to "a presumption of validity" in the absence of a contrary ruling by "the expert on this subject," the Interstate Commerce Commission. "The question is one of degree and calls for a close appraisal of the facts. I am not persuaded that the evidence adduced by the railroads overcomes the presumption of validity to which this train limit law is entitled." After subscribing to Justice Black's views, then, he concluded with the opinion that the Arizona law "should stand as an allowable regulation enacted to protect the lives and limbs of the men who operate the trains."

Water Carrier Revenues in 1944

Class A and B water carriers reporting to the Interstate Commerce Commission had 1944 freight revenues of $72,147,061 and passenger revenues of $12,963,871, increases respectively of 24.8 per cent and 11 per cent above 1942, according to the yearly statement issued by the commission's Bureau of Transport Economics and Statistics. Classes A and B embrace all reporting water carriers with annual operating revenues of $100,000 or more.

The compilation, Statement No. Q-650, shows that the 1943 freight revenues of the Pacific Coast group were down 2.8 per cent from the previous year, but the freight revenues of all other groups were up as follows: Atlantic and Gulf Coasts, 24.9 per cent; Great Lakes, 28.9 per cent; Mississippi River and Tributaries, 30.8 per cent. All groups reported increased passenger revenues, the range being from 2.3 per cent for the Atlantic and Gulf Coasts group to 27 per cent for the Mississippi River and Tributaries group. No data are shown for the Intercoastal group, a footnote explaining that all such service was suspended during the year under review.

June 9 Week's Grain Loading 20.8 Per Cent Above 1944

Following through from the June 12 press conference wherein Director J. Monroe Johnson undertook to straighten out the record with respect to the grain movement, the Office of Defense Transportation issued a June 16 statement announcing that the railroads carried 20.8 per cent more wheat and other grain products in the week ending June 9 than in the corresponding week of 1944. Colonel Johnson's press conference was reported in the *Railway Age* of June 16, page 1064.

"The number of carloads of grain shipped in the week ended June 9," said O. D. T.'s June 16 statement, "was 53,011, as compared with 43,895 for the same week in 1944. This was the twelfth consecutive week in which 1945 grain loadings were higher than those of 1944. Total grain loadings for the United States for the first 23 weeks of 1945 were 1,071,317, as compared with 1,052,141 for the first 23 weeks of 1944. In the western districts grain loadings for the week ending June 9 were 37,119 cars, an increase of 7,783 cars, or 26.5 per cent, over the corresponding week of 1944.

P. R. R.-Reading Seashore Lines Revamp Summer Schedules

To provide all possible accommodations for seashore passengers this summer, under restrictions imposed by the Office of Defense Transportation, the Pennsylvania, and Pennsylvania-Reading Seashore Lines passenger train service between Philadelphia, Camden, Atlantic City and the other South Jersey resorts, is to be rearranged, effective June 24.

Because the O. D. T. will not permit any increases in passenger train mileage for summer seasonal and civilian vacation travel (due to heavy demands for cars to move wounded and "redeployed" troops) in the seashore service the railroads can operate only the mileage represented in the "winter" schedules. With no extra trains or extra sections of scheduled trains permitted, every effort has been made to rearrange and adapt the available train mileage for the convenience and accommodation of summer seashore passengers.

Under the rearranged schedules, announced in new timetables, soon to be available, "bridge trains" from Broad Street station, Pennsylvania station-30th street and North Philadelphia to shore points will be eliminated on Saturdays, Sundays and holidays, as during the past two summers. Operation of these trains to and from the Camden terminal and Market street wharf will permit the limited number of cars and locomotives available to perform a third more service, the route via the Camden terminal being 10 miles shorter and the time almost 30 minutes less. The present complement of trains between Camden and the resorts, plus those moved from Broad Street station, will be maintained.

"City of Denver" Twins Celebrate Tenth Birthday Anniversary

On June 18 the twin "City of Denver" streamliners, operated jointly by the Chicago & North Western and the Union Pacific, celebrated nine years of service between Chicago and Denver, Colo. The two trains have run up a total of 6,849,062 miles. Starting out as 12-car units the trains were increased to 14 cars each in May, 1939. They originally operated on a 16-hr. schedule which, however, has been increased to 17 hr. westbound, and 16 hr., 40 min. eastbound as a means of conserving equipment and parts during the war emergency.

More Wrought Iron Available

A report from the War Production Board indicates that railroads will be among the principal beneficiaries of an increased supply of wrought iron, amounting to a change in the supply situation in that metal "virtually overnight" from "tight" to "relatively ample," which has resulted from recent cancellations by the Navy of orders for large tonnages of chains.

This increase in the supply of wrought iron not committed to war uses will "probably" enable the carriers to obtain their requirements of staybolts and bars, as deliveries of wrought iron plates, forging billets, pipe and tubing, staybolt bars and chain iron can now be made with "reasonable promptness," according to G. L. Moore, chief of the wrought iron section of the W. P. B. Steel Division. There will continue to be delays in deliveries of special shapes and of bars of very small size, because these items are not stocked in warehouses and are rolled as sufficient orders accumulate.

Pipe Line Act Extended

President Truman has signed recently-enacted legislation to extend for another year, until June 30, 1946, the provisions of the so-called Cole pipe-line act to facilitate the construction of petroleum pipe lines related to national defense. The extension act is Public Law 78—79th Congress.

Erie Publicizes Its Directors to Its Stockholders

The Erie has sent to its 22,000 stockholders a 12-page booklet which introduces them to the directors of the company. There are photographs of the 15 directors and short biographical sketches of each one.

In the foreword to the booklet, addressed to the railroad's stockholders, President Woodruff says in part, "Perhaps to many of the stockholders the names on the proxies were just names—nothing more. Perhaps you, as a stockholder, may not know anything about our directors who, after all, are the supervisors of management and are charged with the responsibility of directing the affairs of the company in which you have an investment. They

occupy a position of trust and confidence, and act as trustees for the benefit of all the stockholders."

The Erie takes some pride in the fact that "all but 3 of the 15 directors are products of small-town America"; and that the "background and experience of these men cover a wide range of business activity—manufacturing, retailing, banking, law, transportation—which help to solve many of the important problems that arise in connection with the affairs of the company."

May Ton-Miles

The volume of freight traffic handled by Class I roads in May amounted to 63,400,000,000 ton-miles, according to a preliminary estimate based on reports received by the Association of American Railroads. The decrease under May 1944 was 1.4 per cent.

Revenue ton-miles of service performed by Class I roads in the first five months of 1945 was 1.7 per cent under 1944, but 3.5 per cent greater than the corresponding period two years ago.

The accompanying table summarizes revenue ton-miles for the first five months of 1945 and 1944.

First 3 months	176,732,142,000	182,459,451,000	Dec. 3.1
April .	[a] 61,600,000,000	60,288,986,000	Inc. 2.2
May . .	[b] 63,400,000,000	64,270,148,000	Dec. 1.4
Total 5 months	301,732,142,000	307,018,585,000	Dec. 1.7

[a] Revised estimate.
[b] Preliminary estimate.

New Haven Creates Industrial Development Department

The New Haven has taken still another step in its post-war planning program, in the creation of a department of industrial development. Manager of the new service will be Percy E. Benjamin, former traffic development agent, who will make his headquarters in Boston, and will conduct an intensive campaign to attract new industries to the area served by the railroad.

Encouragement and assistance will be given as well to established industries in any expansion programs which they might contemplate, and activities of the department will be carried on by representatives of the New Haven in 29 leading cities throughout the country.

Mr. Benjamin, who is also a member of the Industrial Development Committee of the New England Council, first went with the New Haven 30 years ago. He held various clerical positions and in 1921 became express agent in New York City. After serving as Pacific Coast agent for several years he became industrial agent for New England in 1932. In 1941 he was made traffic development agent.

Boston Terminal Loses in New Haven Reorganization Case

By its refusal to review the appellate court's decision in the case, the Supreme Court of the United States on June 18 made final that court's finding against state of Massachusetts, city of Boston and Boston Terminal Company interests in a suit contending that the procedure followed in formulating a plan of reorganization for the New York, New Haven & Hartford under section 77 of the Bankruptcy Act was in violation of law.

The suit grew out of a provision in the approved plan of reorganization reducing the rental paid by the New Haven to the terminal company, and abrogating its mandatory use of the terminal. Certain phases of the so-called fourth plan submitted by the commission were disapproved by the federal district court, which authorized the commission to file an additional plan. This so-called fifth plan, which gave the terminal company the option of accepting the abrogation of required use of its facilities or suing for damages, was approved by the court.

The appellate court held that the commission properly filed its fifth plan with the court even though the fourth plan was still under advisement; that the approved plan was not invalid because it was in conflict with a state law creating the terminal company and imposing certain obligations on the railroad; that the reorganization plan was not an amendment of the terminal company's charter; and that the terminal company had not improperly been denied a hearing before the commission.

Western Roads Fight Rate Rule, Other Lines Yield

Following a meeting held at Chicago on June 16 it was announced that western railroads will oppose the recent decision of the Interstate Commerce Commission ordering a uniform schedule of class rates for the entire United States. At the same time it was reported that the Western roads will join with eastern and southern railroads in preparing and submitting to the I. C. C., a uniform freight classification for the whole country.

Action of the western roads followed a joint conference of eastern, western and southern traffic executives at Chicago on June 15 at which the eastern and southern carriers announced their decision to undertake compliance with the commission's order. It was stated, however, that an extension of time will be necessary in which to make effective the interim adjustment in rates, which the decision orders, for the reason that the physical task of preparing tariffs cannot be completed by August 30. This interim adjustment requires raising class rates in eastern territory by 10 per cent and lowering them by 10 per cent in and between southern and western territory, and also between these territories and eastern territory.

In announcing the western roads' intention to oppose the rate adjustment, W. H. Dana, chairman of the Western Traffic Executives' Committee, issued the following statement:

"The recent decision of the I. C. C., in the class rate investigation contemplates severe reductions in the revenues of the western carriers, and may ultimately involve necessity for revision upward of rates on agricultural products and other important commodities. For these reasons, the traffic executives of the western lines generally find it necessary to make further opposition to the decision.

"The decision would result in much greater revenue loss to the western lines than it would to the lines in either the East or the South. The effect of the losses, due to reductions in rates on manufactured and other high class commodities, could only be offset in such a way as to allow the western lines sufficient revenue to sustain adequate transportation through increases in rates on commodities which constitute much the greater proportion of western freight tonnage. It is the position of the western carriers that this would do great injury to production interests throughout

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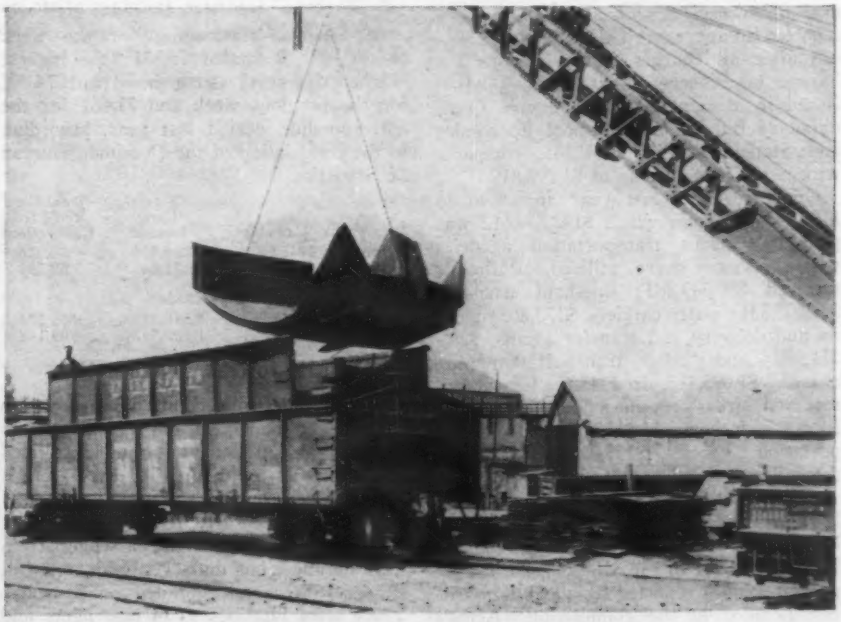


Coal Cars for the Scrap Heap

The Interstate Railroad Company at Andover, Va., recently consigned 1,000 of its coal cars to scrap. Cut down to utility size by Norfolk & Western employees at Roanoke, that portion of scrap ready for shipment to nearby steel mills is shown being loaded into a gondola.

the West, and that it would retard rather than stimulate industrial development in the West.

"As the commission has pointed out in its report, 'there is a wide difference between the traffic densities of the eastern and western districts during the period from 1921 to 1941. The revenue ton-miles per mile of line of eastern district roads have been more than twice, and in some years three times, those of the western district roads.'

"The commission also pointed out the striking difference in the character of traffic in the two districts by citing the facts that the western roads originated 68.82 per cent of the total tonnage of products of agriculture, while the eastern roads originated 60.66 per cent of total tonnage of manufactured and miscellaneous commodities, commenting that 'the eastern roads' preponderance of high grade traffic affords a greater source of revenue to them than do the products of agriculture to the western carriers."

The announcement of the Southern lines' acquiescence to the I. C. C. order was made by J. G. Kerr, chairman of the Southern Freight Association, in the following statement:

"The railroads of the South will comply with the Commission's decision in the class rate and classification cases, Dockets Nos. 28300 and 28310, and do their best to make it work. They have presented their position as to what they conceived and still conceive represent the best interests of the territory they serve. They have always recognized the existence of honest and sincere differences of opinion among the parties which only the Commission could settle. The task confronting the carriers is difficult and of great importance and the patience and cooperation of all parties will be necessary."

1944 Forwarder Revenues

Fifty-one freight forwarders having annual gross revenues of $100,000 or more reported an aggregate 1943 deficit of $248,428 after all charges and provisions for income taxes, according to a compilation issued by the Interstate Commerce Commission's Bureau of Transport Economics and Statistics. This 1944 loss compares with a 1943 net income of $1,298,819.

Gross revenues last year amounted to $180,243,340, from which $142,534,612 was paid to various transportation agencies whose services were utilized. Railroads received $99,349,883; line-haul truckers, $21,603,531; water carriers, $173,803; pick-up and delivery and transfer agents, $20,311,980; and "other transportation purchased," $1,095,415. In 1943 the forwarders reported gross revenues of $189,082,262 from which they paid $150,570,101 to transportation agencies, $105,259,750 going to the railroads.

Acme Fast Freight, Inc., National Carloading Corporation, and Universal Carloading & Distributing Company accounted for $121,044,911 of the $180,243,340 in 1944 gross revenues reported by all 51 forwarders included in the compilation. Acme's gross was $39,474,846; National's $35,850,467; and Universal's, $45,719,598. After provision for income taxes, Acme and National reported 1944 deficits of $324,656 and $448,564, respectively. Universal reported a net income of $158,485.

During 1944 the 51 reporting forwarders received from their customers 18,630,002 shipments aggregating 4,719,827 tons of freight, as compared with 21,217,944 shipments aggregating 5,086,758 received in 1943.

Freight Car Loading

Loadings of revenue freight for the week ended June 16 totaled 872,674 cars, the Association of American Railroads announced on June 21. This was a decrease of 11,611 cars, or 1.3 per cent below the preceding week, a decrease of 4,819 cars, or 0.5 per cent below the corresponding week last year, and an increase of 4,388 cars, or 0.5 per cent above the comparable 1943 week.

Loading of revenue freight for the week ended June 9 totaled 884,285 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For the Week Ended Saturday, June 9			
District	1945	1944	1943
Eastern	162,532	162,631	165,276
Allegheny	194,838	195,188	186,764
Pocahontas	54,905	56,999	57,244
Southern	126,157	121,335	119,079
Northwestern	133,239	134,951	134,313
Central Western	134,565	128,016	121,678
Southwestern	78,049	74,054	70,132
Total Western Districts	345,853	337,021	326,123
Total All Roads	884,285	873,174	854,486
Commodities			
Grain and grain products	53,011	43,895	45,466
Live stock	14,468	14,143	12,891
Coal	175,280	181,228	170,513
Coke	14,588	15,177	13,794
Forest products	46,547	47,815	44,298
Ore	72,741	83,001	87,347
Merchandise l.c.l.	108,236	104,349	98,763
Miscellaneous	399,414	383,566	381,414
June 9	884,285	873,174	854,486
June 2	837,520	810,698	667,609
May 26	882,437	868,821	853,783
May 19	868,634	870,075	843,842
May 12	838,507	867,182	849,032
Cumulative Total, 23 Weeks	18,619,088	18,630,187	17,850,079

In Canada.—Carloading for the week ended June 9 totaled 75,835 (the highest reached this year) as compared with 74,308 for the previous week and 71,661 for the corresponding period last year, according to the compilation of the Dominion Bureau of Statistics.

Totals for Canada:	Total Cars Loaded	Total Cars Rec'd from Connections
June 9, 1945	75,835	36,976
June 10, 1944	71,661	39,291
Cumulative Totals for Canada:		
June 9, 1945	1,546,319	851,574
June 10, 1944	1,582,853	909,148

Collision at Milton, Pa.

Westbound Pennsylvania passenger train No. 575 (Philadelphia and Washington to Buffalo) at 1:08 a.m. on June 15 collided at Milton, Pa., with derailed cars from a freight train on the adjacent eastbound track. The locomotive, tender and the first seven cars of the 14-car passenger train were derailed, but the seven rear cars (all sleepers) were not derailed or damaged. There were fatalities to 14 passengers and 3 members of the crew of the passenger train, and several persons were injured.

H. L. Nancarrow, general manager of the Pennsylvania's Eastern region, in a statement issued on June 15 stated that the 103-car freight train had 21 cars derailed, the cause for which, preliminary investigation indicated, was a broken journal on the 34th car of the freight train. The freight train had been inspected and oiled at Renovo, 79 miles from the point of accident, and no indication of any abnormal condition in the train had been noted then or thereafter, either by members of the freight train crew or by other employees who observed the train.

No warning could have been given to the passenger train by the freight train crew because hardly any time elapsed between the derailment of the freight cars and the collision of the passenger train with them.

P. & L. E. Auditor Elected to Controllers Institute

Clarence M. Gordon, general auditor of the Pittsburgh & Lake Erie, at Pittsburgh, Pa., has been elected to membership in the Controllers Institute of America, technical and professional organization devoted to improvement of controllership procedure.

Northwest Grain Rate Probe

The Interstate Commerce Commission has instituted an investigation into rates, rules, and practices applicable to the transportation of grain and grain products from Oregon, Idaho, and Utah to Pacific Coast points. The investigation is docketed as No. 29335.

D. L. Veterans Head Retires

Andrew Ock, who is president of the Lackawanna Veterans' Association, will retire from his railroad position—that of chief clerk in the general freight department—on July 1 after 54 years of continuous service. Mr. Ock has been president of the veterans' organization for several terms and, after retirement, he will devote his time to the expansion of the membership and activities of the association.

Denies "Fan" Group Petition in Y. V. Abandonment

The Interstate Commerce Commission, Division 4, has denied the petition of the Pacific Coast Railroading Association, a railroad "fan" group, for leave to intervene in the proceeding wherein the Yosemite Valley is seeking authority to abandon its 77.7-mile line between Merced, Cal., and El Portal. As noted in the *Railway Age* of June 16, page 1067, the Y. V. asked the commission to take such action, asserting that the association and its 18-year-old president, who would like to have his organization acquire and operate the road, were "financially irresponsible."

Clay Pipe Industry Ships Its Tonnage by Rail

Nearly 80 per cent of the total tonnage produced by the clay pipe industry during 1944 was shipped out by rail, according to a report by John D. Cook, secretary-treasurer of the National Clay Pipe Manufacturers, Inc., a newly-formed association made up of forty-four leading clay product producers throughout the nation. This yearly percentage, which has fluctuated only

slightly over the past decade, takes in only outbound shipments and does not include inbound carload shipments of lumber, sand, salt and other materials used by the plants.

Mr. Cook stated that "unlike pipe of other construction that is either carted by truck, or fabricated on location with materials brought in by truck, clay pipe is one product that will continue to rely upon railroads for transportation. The industry has always worked in full cooperation with railroad organizations in overcoming any obstacles encountered in clay pipe shipping, and loading methods have been steadily improved in recent years." Mr. Cook pointed out that the railroads are giving acceptance to an extra-strength vitrified clay pipe designed especially to handle railroad drainage problems.

Emergency Boards

President Truman on June 16 issued an executive order creating an emergency board to investigate a dispute which had brought a strike threat to the Georgia & Florida. The employees involved are represented by the Brotherhood of Locomotive Engineers, Brotherhood of Locomotive Firemen & Enginemen, Order of Railway Conductors, and Brotherhood of Railroad Trainmen; they are demanding that their wage rates be increased to the so-called standard scale. Members of the emergency board are Eugene L. Padberg, Russell Wolfe, and James P. Hughes.

Meanwhile the White House has made public reports of two emergency boards appointed recently to investigate disputes on the Colorado & Wyoming and the River Terminal. The former involved demands of the Brotherhood of Locomotive Firemen & Enginemen and the Brotherhood of Railroad Trainmen for application of the 1943 year-end wage increase to enginemen and switchmen working on "dinkey" locomotives around open hearth and blast furnaces. The board found that the men involved were employees of the Colorado Fuel & Iron Co., not of the C. & W., and thus the wage adjustment did not apply to them. Mr. Padberg, now serving on the G. & F. board as noted above, was a member of this board, too, the other members being H. Nathan Swaim and Ridgely P. Melvin.

The River Terminal case involved 10 disputes arising out of unadjusted grievances of employees represented by the Brotherhood of Locomotive Engineers and Brotherhood of Railroad Trainmen. The board's report recommends that the road reinstate without loss of pay a conductor, who was dismissed upon his refusal to make a movement of cars which he insisted was unsafe without a "full" crew. It would drop the other grievances. Members of the board were Richard F. Mitchell, Robert I. McDonough, and Robert W. Woolley.

Equipment on Order

Class I railroads on June 1 had 31,283 new freight cars on order, according to the Association of American Railroads. On the same date last year, they had 43,444 on order. The June 1, 1945, figure included 4,291 hopper, 4,834 gondolas, 1,260 flat, 17,130 plain box, 1,800 automobile, 1,899 refrigerator, and 19 stock freight cars and 50 miscellaneous cars.

They also had 504 locomotives on order on June 1, compared with 643 on the same day in 1944. The former figure included 119 steam, two electric, and 383 diesel-electric locomotives compared with 203 steam, two electric, and 438 diesel-electrics one year ago.

Class I roads put 18,818 freight cars in service in the first five months this year compared with 12,263 in the same period last year. Those installed in the first five months this year included 6,299 hoppers, 3,152 gondola, 138 flat, 220 stock, 623 refrigerator, 477 automobile box, 7,909 plain box freight cars.

They also put 260 new locomotives in service in the first five months of which 43 were steam, and 217 were diesel-electric. New locomotives installed in the same period last year totaled 417, which included 166 steam, one electric, and 250 diesel-electric.

In the previous monthly report of equipment orders and installations, which appeared in the *Railway Age* of May 26, page 952, the figures on locomotives placed in service were incorrect. The A. A. R. has made available corrected figures which show that in this year's first four months 191 locomotives were installed, including 32 steam and 159 diesel-electrics. The comparable figures for the first four months of 1944 are: 336 locomotives, including 140 steam, one electric, and 195 diesel-electrics.

Reopens Frisco Truck Cases

The Interstate Commerce Commission has reopened for further hearing the eleven proceedings covered by Examiner David Waters' proposed report which recommends that various truck routes acquired from time to time by the Frisco Transportation Company from independent operators be now restricted by the imposition of specific conditions designed to insure that the highway freight services remain auxiliary to St. Louis-San Francisco rail service. The examiner's report was noted in the *Railway Age* of February 17, page 359, the title case being No. MC-89913 (Sub-No. 1). The reopening was sought by Frisco Transportation.

Railway Employment Needs Still High

For the month ending April 30 the Railroad Retirement Board reports a total of 97,774 unfilled openings for railway positions. During April 150,045 men were referred to the railways by the board as applicants for positions. The unfilled openings for executives, professional men, telegraphers and clerks amounted to 5,454, the greatest shortages in this category being 2,118 miscellaneous clerks and 1,310 telegraphers. The shortages in train and engine service amounted to 9,826, including 4,414 brakemen, 1,314 locomotive firemen and 2,903 switchmen. The shortage in skilled trades amounted to 12,423, of which 2,754 positions were as carmen, 1,765 bridge and building carpenters and 2,662 machinists. The shortage in helpers and apprentices amounted to 11,756, including 2,082 carman helpers, 1,515 bridge and building carpenter helpers, 2,050 machinist helpers and 1,085 signalman helpers.

Numerically the greatest shortages were reported in common labor, with 55,226 unfilled openings including 1,015 express handlers, 5,800 freight handlers, 7,407 shop laborers, 1,639 stores laborers, 14,532 extra gang laborers and 20,362 section laborers. The shortage among attendants, cooks, porters and waiters amounted to 1,898 and miscellaneous shortages to 1,191.

The shortages by regions were as follows:

Region 1—Atlanta	6,239
Region 2—New York	19,049
Region 3—Cleveland	11,870
Region 4—Chicago	21,374
Region 5—Dallas	5,155
Region 6—Kansas City	9,084
Region 7—Minneapolis	4,475
Region 8—Denver	6,222
Region 9—San Francisco	14,306

Says I. C. C. Was Too Strict in Denying Boat Line Permit

The Supreme Court of the United States, in a five-to-four decision, this week reversed the Interstate Commerce Commission's denial of an application of a contract water carrier for a permit for chartering operations under the grandfather clause of Part III of the Interstate Commerce Act, the denial being based on a lack of showing as to the nature of the services rendered, commodities carried or points served. The majority opinion was by Justice Rutledge, while Chief Justice Stone and Justices Roberts, Frankfurter and Jackson dissented.

The case, *Barrett Line* vs. *U. S.*, came to the Supreme Court after a federal district court upheld the commission's refusal to grant the operator either a grandfather certificate or a permit for new operation on the ground that, on the showing made, Barrett was engaged in the movement only of commodities for which its authorization is not required under the exemptions set forth in the statute. "To require the chartering carrier to prove specific instances of non-exempt commodity carriage would molecularize, if not atomize, the chartering business," the majority held, and threaten its complete destruction, a result not contemplated by the national transportation policy.

Its "varied and spasmodic" operations may be the "most valuable inherent advantage of a contract water carrier," the decision added, and it concluded that the commission's attitude toward the requirements of the law had not been sufficiently liberal in this respect. The action of the commission denying the operator a permit for other than chartering operations was sustained, however, as it was held that a showing had been made only of charter operations.

The dissenting justices held that the commission had kept within the bounds of the statute, and that the commission's experience should prevail in its interpretation.

Court Tells Georgia to File Bill of Particulars

On the final day of its current term, the Supreme Court granted in part the motion of the railroad defendants in the Georgia anti-trust suit for a bill of particulars to make more definite the allegations of injury suffered by the state and its citizens as a result of the carriers' "conspiracy" in fixing freight rates through "collusive action."

The state is required to file such particu-

lars with the clerk of the court by August 15, and the defendant railroads' time to answer the bill of complaint is extended to October 1. The court's order specified by reference to the motion of the northern railroads (reported in *Railway Age* of June 2, page 992) the matters upon which Georgia is required to supply more specific information.

As noted last week, the state had objected to filing such particulars on the grounds that the defendants were asking it to disclose its proof prior to trial of the suit and that the alleged illegal acts had continued over a period of years and could not be specified as isolated incidents. The railroads on June 15 filed a reply to the state's objections, pointing out that the court, in its decision to hear the case, had said that the complaint might have to be amplified and clarified, and that bringing the complaint within "reasonable limits" would expedite the disposition of the suit.

The southern carriers at that time informed the court that "there is no essential conflict between their interests and economic prosperity and that of the state of Georgia. The differences lie only in the varying judgment of individuals in the evaluation of economic and industrial problems and in the determination of the proper methods by which such problems are to be met. The truth of the pending controversy can be arrived at only by the trial of specific issues instead of by an undirected inquiry into broad generalities."

Forwarders and Truckers Can Join in Line-Haul Rates

Line-haul joint rates between forwarders and motor carriers are made lawful temporarily along with joint-rate arrangements covering assembling and distribution services under the Interstate Commerce Act's section 409 which has permitted forwarders to continue existing practices during the specified period allowed for a change-over to the use of assembling and distribution rates published by the motor carriers in accordance with provisions of section 408. The Interstate Commerce Commission has made the foregoing ruling in a report by Commissioner Splawn in the No. MC-C-440 proceeding instituted by the commission to determine the scope of section 409.

As the report points out, section 408 contemplates the establishment for the future of assembling and distribution rates by common carriers, and specifically provides that such rates shall not be established to cover "the line-haul transportation between the principal concentration point and the principal break-bulk point." Parties other than the respondent forwarders urged that this prohibition against special line-haul rates for forwarders in the future implied that no transition period was provided under section 409 for the line-haul joint rates. The commission did not accept that point of view, but held that, while section 408 provides a certain permanent basis for future rates, section 409 sanctions existing arrangements for the transition period, which was recently extended by Congress until February 16, 1946.

The dissent of Commissioner Aitchison was noted while Commissioner Patterson in a brief dissenting expression stated it to be his view that section 409 gives the transition-period reprieve to joint-rate arrangements for assembling and distribution services only. This was the view expressed in the proposed report made in the proceeding by Special Examiners W. V. Hardie and Walter T. Hayes. In order to set up the question of construction involved, the examiners made a field investigation of arrangements between Liberty Motor Freight Lines, Inc., LeCrone-Benedict Ways, Inc., and Akers Motor Lines, Inc., and Acme Fast Freight, Inc., National Carloading Corporation, and Universal Carloading & Distributing Company.

Palmer Becomes Vice-President of Transportation Association

Henry A. Palmer, former editor of "Traffic World," has been elected a vice-president and member of the board of directors of the Transportation Association of America, with headquarters at Chicago. At the same time it was announced that LeRoy Kramer, first vice-president of the American Transportation Corp., was also elected a vice-president of the association, and S. S. Bruce, general traffic manager of the Koppers Co., was elected a member of the board.

Charge Elkins Act Violations

Secretary W. P. Bartel of the Interstate Commerce Commission announced on June 12 that the commission has been advised that an information in 25 counts was filed on April 27 against the Kansas City Southern in the Beaumont division of the federal court for the Eastern District of Texas, charging that carrier with granting concessions in violation of section 1 of the Elkins Act in handling certain carload shipments, billed as scrap metal plates, from Ecorse, Mich., to Port Arthur, Tex. The matter was investigated by the commission's Bureau of Inquiry.

May's Operating Revenues Up 0.7 Per Cent

From preliminary reports of Class I roads representing 81 per cent of total operating revenues, the Association of American Railroads has estimated that the May gross totaled $655,282,389, an increase of 0.7 per cent above the $651,043,268 reported for May, 1944. Estimated May freight revenues were $496,551,894, compared with $485,426,375, an increase of 2.3 per cent. Estimated passenger revenues were $113,415,733, compared with $121,276,765, a decrease of 6.5 per cent.

Three Railroads to Receive Safety Medals, June 27

The E. H. Harriman Memorial gold, silver and bronze medals for safety in 1944, among railroads in their respective classes, will be awarded the Michigan Central, the Ann Arbor, and the Lake Superior & Ishpeming by the American Museum of Safety, at a dinner to be held June 27, at the Waldorf-Astoria hotel, in New York.

Presentation of the medals will be made by Robert V. Fletcher, vice-president, Association of American Railroads, and chairman of the Museum's award committee, before a distinguished audience which will include O. D. T. Director J. Monroe Johnson and a number of prominent railroad officers and industrial leaders.

The gold medal will be accepted for the Michigan Central by C. L. Jellinghaus, vice-president and general manager; the silver medal by Norman B. Pitcairn, president of the Ann Arbor; and the bronze medal by August Syverson, L. S. & I. vice-president and general manager.

Colonel Johnson, who is to be the principal speaker, will talk on "Transportation Conditions in Time of War." Wallace J. Falvey, president of the Museum, will preside.

There will be a presentation as well of the Arthur Williams Memorial Medal to Col. John Stilwell, chairman of the board of directors of the National Safety Council, by Frank L. Jones, president, Greater New York Safety Council.

Roy V. Wright, managing editor, *Railway Age*, will award a distinguished service certificate posthumously to Lew R. Palmer, who at the time of his death was a trustee of the Museum.

Burlington Rents Chicken Farm to Augment Dining Car Food

The Chicago, Burlington & Quincy has leased a modern chicken farm near Lincoln, Neb., as a means of increasing the supply of food aboard dining cars of the road. According to Edward Flynn, executive vice-president of the Burlington, the farm is expected to raise 30,000 birds each year, which will materially relieve the present annual requirement which averages about 100,000 chickens a year.

Tariff Interpretation Rule Draws Alldredge Fire

With Commissioner Alldredge complaining that his colleagues were refusing to stay on the "right" road to which they had returned temporarily after having taken a "wrong" turn, the Interstate Commerce Commission has ruled in a reparations case that a rate applicable to a specific commodity description contained in the classification takes precedence over rates under a generic commodity description. The decision is embodied in the commission's report on reconsideration in No. 28984 involving the applicable rate on l.c.l. shipments of synthetic gum or resin, without filler, from Seattle, Wash., to North Tonawanda, N. Y.

In the original report the commission awarded reparations on the basis of a finding that the first-class rate of $5.94 derived from the specific classification description was inapplicable, and that the applicable rate was a commodity rate of $3.80 published on "chemicals." The present report vacates the reparations order and dismisses the complaint. As Commissioner Alldredge put it, the decision "contains in substance a restatement of the arguments" set forth in *Indian Refining Company v. Cleveland, C. C., & St. L. Ry. Co.*, 222 I. C. C. 409.

"Prior to the time of [that] decision," Commissioner Alldredge added, "the commission, in a long line of decisions extending back to the earliest days of regulation, had taken the attitude that rates under a generic commodity description, or under an item published as an exception to the

freight classification, should take precedence over a rate applicable to a more specific description contained in the classification. This was in harmony with the fundamental purpose of commodity and exception rates. Without adequate support the report in the *Indian Refining Company case* discarded this time honored and salutary rule of tariff construction. Later, however, in *Norwich Wire Works, Inc., v. Boston & M. R.*, 232 I. C. C. 593, the commission returned to this principle. The latter decision was followed in the prior report herein and also in decisions rendered by divisions of the commission, as shown in the prior report." The majority now revert to the holding in the *Indian Refining Company case*, and set forth a lengthy discussion ostensibly designed to justify that action."

Commissioners Aitchison and Porter joined in the Alldredge expression.

RR Trucks Can Run Despite Competition

(*Continued from page 1114*)

show that the existing transportation facilities were inadequte to serve the public needs efficiently. No such showing was made, or attempted, in this case, he pointed out, so the railroad is considered more favorably than any other applicant would be. The service is different from the adequate independent motor service already existing only in that it is under railroad control, according to Justice Douglas, since the key point restriction, in his opinion, does not accomplish the same restrictive result as the formerly used provision limiting the business of a truck operation supplemental to rail operation to traffic which had a prior or subsequent rail haul.

"The railroad wants this broad certificate so it can better compete with existing motor carriers," the dissent said. "If the railroad really wants a purely auxiliary service, let the certificate be limited to commodities which have a prior or subsequent rail haul. But it is not so conditioned. The railroad is entering the motor carrier field and rendering a pure motor carrier service. If the policy of Congress is to be honored, there must be finding supported by evidence that competition will not be unduly restrained. On this record no such finding has been or can be made."

"Material Evidence" Excluded—In the comparable case the court's opinion was again by Justice Reed. There were no dissents, though Justices Douglas, Black and Rutledge noted their concurrence for the reasons set forth in the dissent in the *Parker* case. The second case was appealed to the Supreme Court by the A. T. A. and Flamingo Truck Lines, *et al.*, following the decision of a specially constituted federal district court upholding the commission's approval of the Seaboard Air Line's applications to operate motor trucks as supplementary to its rail operations over various segments of its line in Virginia, North Carolina, South Carolina and Florida.

In addition to the question whether the coordinated operation should have been approved on the basis of public convenience, if not unduly prejudicial to existing motor carriers—as to which the court's decision in the *Parker* case was held to be applicable—the A. T. A. here raised other questions on which the Supreme Court based its reversal of the district court's decision. Objection was offered to the constitution of the joint boards to which the Seaboard's applications were referred and also to the exclusion by the joint boards and by the commission of "material evidence on the effect of the proposed operations on the existing or over-the-road truck service." The commission was upheld on its assignment of joint boards, but not on the exclusion of evidence.

Justice Reed remarked that "the commission must weigh the advantages of improved rail traffic against the injury to the over-the-road motor carriers to determine where public convenience and necessity lies. It is a difficult task to appraise these conflicting interests. It is a problem which should be solved only after the receipt by the commission, under its usual rules of admissibility, of all available material evidence as to the probable effect of the proposals on the operations both of the proponents of and the protestants against the applications. . . . Those affected are entitled to fully develop the bearing of the proposals on the transportation agencies which are involved. The discretion of the commission should be exercised after consideration of all relevant information."

I. C. C. Orders Texas Grain Rates Increased

Texas intrastate rates on wheat and products thereof taking the same rates, prescribed for application within that state by the Railroad Commission of Texas, have been found by the Interstate Commerce Commission to result in unjust discrimination against interstate commerce. The report is in the No. 28770 proceeding instituted by the commission January 16, 1942, upon petition of Texas railroads, and it embraces also No. 28787, a complaint of the Texas Industrial Traffic League.

The title proceeding arose as a result of the Texas commission's October, 1941, order requiring the railroads to discontinue the addition of arbitraries or differentials to intrastate rates on grain and grain products for hauls in so-called Texas differential territory. The No. 28787 complaint, which the commission's report dismissed, alleged that rates applicable to the interstate transportation of grain in Texas were unreasonable to the extent that arbitraries over the common-point scale were added for hauls in differential territory.

In condemning the intrastate rates on wheat and products thereof taking the same rate as noted above, the commission refused to do the same with respect to the intrastate rates on coarse grain. It found that such rates were not unjustly discriminatory against interstate commerce.

In accordance with the commission's practice in such cases, the decision left the matter of adjusting the rates to conform to its findings to the railroads and the Texas commission. If this is not accomplished within 30 days from the service of the report, "consideration will be given to the entry of an appropriate order."

Dissenting-in-part expressions came from Commissioners Mahaffie and Splawn. The former did not agree that the record furnished a valid basis for a 13th section order, and Commissioner Lee subscribed to his view. Commissioner Splawn, with whom Commissioner Aitchison agreed, said that the majority departed "from the principles which have heretofore governed this commission and have been sustained by the courts in proceedings of this nature."

Prescribes Lower Meat Rates from Mid-West to Coast

Heeding complaints of midwestern packers who alleged that the existing rate setup excluded their meats from Pacific Coast markets, the Interstate Commerce Commission, in a report by Commissioner Alldredge, has prescribed drastic reductions in carload rates on fresh meats and packing house products to nine Pacific coast and intermountain states from points in Illinois, Wisconsin, Minnesota, Missouri, Iowa, Kansas, Nebraska, Colorado, and South Dakota. The report covers 11 complaints, the title proceeding being No. 28978, Geo. A. Hormel & Company et al v. The Atchison, Topeka & Santa Fe Railway Company et al.

Key-point rates are prescribed between 13 origin points and six western destinations, and rates from and to other points are to be made "in reasonable relation to the prescribed rates according to distance and grouping." The extent of the cut is indicated by the reduction in the rates between Omaha, Neb., and Seattle, Wash. The present 260-cents-per-100-lb. rate on fresh meats is cut to 156 cents, while the 205-cent rate on packing house products will go down to 130 cents.

Much of the evidence related to the relationship between the rates on fresh meats and those on livestock, the complainants objecting to existing conditions under which the surplus hog production in the Middle West was being marketed "mostly by shipping the live animals to the Pacific coast packers, who purchase them in the Midwest for slaughter in their plants on the Pacific coast." The complainants asserted that "it is an economic waste to ship live hogs some 1,600 miles or more," and that a "reasonably related rate structure" would permit the midwestern packers "to slaughter a fair share of these home-grown hogs and ship the meat produced therefrom to the Pacific coast."

The mountain-Pacific and Pacific-coast interests, on the other hand, contended that the rate adjustments sought by complainants would "seriously injure" the western livestock and packing industries. In deciding for the complainants, the commission found that the assailed rates were "unreasonable" when "tested by the usual standards followed by us in the prescription of reasonable rates on the same commodities in other territories."

"They are," the report added, "a greater percentage of first class than that prescribed by us for movements in the East, South, and Southwest, and also as presently maintained by defendants for many important movements of the same commodities in the destination territory, they exceed the livestock rates between the same points by about three times the percentage relation prescribed by us for movements from the same origins to other territories; they also

exceed the rates prescribed as reasonable by us on like commodities in the Southwest by 75 per cent or more, whereas on other commodities we have prescribed a maximum differential of but 15 per cent for mountain-Pacific territory over the Southwest, such differential to apply only to the portion of the haul within mountain-Pacific territory; they exceed by as much as 57.6 per cent the rates on dressed poultry and dairy products, analogous commodities with meats from a transportation standpoint, voluntarily established and maintained by the carriers from and to the same points, and, finally, they reflect full combinations of locals in numerous instances, a situation not ordinarily found in the construction of reasonable through rates."

Commissioner Mahaffie filed a brief separate expression, dissenting in part, and Commissioner Patterson subscribed to it. These two commissioners conceded that the assailed rates have been too high and should be reduced, but they considered the cut ordered by the majority to be "excessive."

"The severity of the cut," Mr. Mahaffie said, "seems to result from the fact that rates on livestock in this area are, by our order maintained on a very low level. *Livestock—Western District Rates*, 176 I. C. C., 1, 169. The wide disparity thus created as between the rates on the live animals and on the animal products clearly gives shippers of the latter a grievance. But it affords no warrant for the prescription by us under section 1 of rates lower than reasonable maxima in order to reduce that disparity."

1944 Crossing Accidents

The Bureau of Transport Economics and Statistics, Interstate Commerce Commission, has issued its 1944 summary of railhighway grade-crossing accidents. It is Statement No. 4513, the summary figures from which were previously published by the Bureau in the latest issue of its "Monthly Comment on Transportation Statistics," which was reviewed in the *Railway Age* of June 9, pages 1026 and 1032.

As noted there, the 1944 crossing accidents brought death to 1,840 persons and injuries to 4,216, as compared with 1,732 deaths and 4,217 injuries in 1943. Crossing accidents last year totaled 3,811 compared with 3,781 in the previous year. Comparing the pre-war period 1935-39 with the 1940-44 war period the Bureau shows that the average annual number of crossing accidents in the latter was 2.52 per cent higher than in the pre-war period; average annual fatalities were up 12.42 per cent while injuries were down 0.77 per cent.

Another tabulation shows that the 1944 crossing fatalities accounted for 40.76 per cent of the persons killed that year in railroad accidents of all kinds. This compares with 36.99 per cent in 1943 and 39.38 per cent in 1942. Crossing accidents accounted for 12.01 per cent of all 1944's non-fatal injuries, as compared with 12.56 per cent in 1943 and 17.21 per cent in 1942.

Last year's crossing accidents in which motor vehicles were involved accounted for 86.17 per cent of the total, 82.17 per cent of the fatalities and 94.47 per cent of the non-fatal injuries. Next largest group were those involving pedestrians, accounting for 275 deaths, as compared with 304 in 1943.

Road freight trains were involved in 45.77 per cent of the 1944 crossing accidents while passenger trains were involved in 40.35 per cent of the total. The frequency rate for freight trains was 2.16 per million train-miles; for passenger trains it was 2.8 per million train-miles. These compare respectively with 1943 figures of 1.99 and 2.84. Sixty-five per cent of the accidents in which the motor vehicle was struck by the train occurred in daylight, while 78.05 per cent of those in which the motor vehicle ran into the side of the train occurred after dark.

As was the case in 1943, December was the 1944 month in which the greatest number of crossing accidents occurred. Saturday, which has held first place since the compilation was begun in 1935, remains the day of greatest accident frequency. The weather was reported "clear" when 68.9 per cent of the 1944 accidents occurred; and the speed of the motor vehicle was given as "standing" or moving at not more than 30 m.p.h. in 61.11 per cent of the accidents involving motor vehicles. Standing freight trains were involved in 10 per cent of the train-motor vehicle accidents involving freight trains.

B. & M. Employees Are Told About '44 Operations

In the belief of President E. S. French of the Boston & Maine that "the problems of management are likewise problems that employees must be concerned with," the company has issued a special edition of its employees' magazine in which employees are given in "non-technical language" the substance of the railroad's annual report to its stockholders.

The report states plainly that "there is no magic in how a railroad gets its money." Like any other business a railroad cannot spend more than it takes in, and its one means of obtaining money is from the sale of its services—freight and passenger transportation—to the shipping and the traveling public. Cautioning the employee not to be misled by the war-time volume of traffic, and urging him to remain aware of the coming peace-time need of producing "railroad transportation cheaply enough to compete with other forms of subsidized transportation which have grown up so fast in the last few years," the report reminds him that "the one thing which is necessary to each of us individual employees is a prosperous Boston & Maine Railroad, and one which has the foresight and ability to change rapidly enough to keep ahead of the transportation procession."

By charts, text and pictures, the employee is given full information "about the business on which we all depend and which depends on us." The Boston & Maine, he learns, is a $269,570,102 investment, comprised of 16,717 employees, 10,650 stockholders, 1,789 miles of road, 3,430 miles of track, 530 locomotives, 6,797 freight cars and 1,158 passenger cars. At a glance he will see that $60,205,568 of the 1944 income was realized from freight, that more than $19 million came from carrying passengers, and over $8 millions from other railroad operations.

Reading further, he will discover how the money was spent. He will note that wages alone took up $39,686,148, and that the rest of the money went for some $13 million of materials and supplies, roughly $8 million for taxes, $6 million for fuel, $5 million for depreciation and amortization, another $5 million for improvement to plant and debt reduction, $4 million for interest on borrowed money, and $4 million more for rentals paid for use of cars and property of other railroads.

That the B. & M. has no intention of "folding up" in the post-war period, is evidenced in the railroad's belief that it "will be able to maintain a satisfactory earning capacity over the years to come." And the employee is assured that the railroad payroll "will continue to provide an excellent living for a substantial number of employees in the five states which we serve."

Just one admonition: "Let's make sure that we don't get our railroad in anyone's little black book."

Missouri-Arkansas Purchase Plan Is Called Off

A deal for the purchase of the Missouri-Arkansas by a group of Middle West businessmen which was recently reported nearing conclusion has been called off according to a statement issued on June 18 by Malcolm Putty, executive vice-president of the road, with headquarters at Harrison, Ark. Details of the proposed purchase were being conducted by officers of the road and the group which included Thomas Grimmett, Oklahoma City, Okla.; Samuel Summers, Columbus, Ohio, and W. G. Bell, Springfield, Ohio, when negotiations were broken off.

Great Lakes Advisory Board to Hold Toledo Meeting

The Great Lakes Regional Advisory Board will hold its 61st regular meeting at the Commodore Perry hotel, Toledo, Ohio, June 27.

C. R. Megee, manager, Open Car Section, Association of American Railroads, Washington, D. C., will discuss national transportation conditions, and there will be a report of the Railroad Contact Committee by President R. J. Bowman of the Pere Marquette. There will be the usual reports of general committees.

New Haven Ad Pays Tribute to Country Editors

"When the time comes to hand out honors," reads a New Haven advertisement now appearing in country newspapers along its lines, "'way up near the top of our list will be the country editor . . . the man who has done more than anyone else to keep the home front informed . . . on its toes . . . and united."

An accompanying illustration shows the editor still at his typewriter at five minutes past midnight. "Keys chatter under his two-fingered tapping," the message reads. "Not looking for thanks . . . he doesn't count the page after page he's given away for good causes. He doesn't begrudge the long hours he has to put in. Short of paper, short of help . . . and many times short of revenue . . . these are his contributions to the war," the New Haven reminds the newspaper reader.

Supply Trade

William B. McGorum, vice-president and general manager of the Lehigh Valley Transit Company, has been appointed district sales manager, New York sales district, of the **ACF-Brill Motors Company.**

E. G. Hallquist, special representative in the Chicago district sales office of the **General Steel Castings Corporation,** has been transferred to the company's Granite City, Ill., plant as assistant vice-president. Mr. Hallquist's new position was reported incorrectly in the *Railway Age* of June 16, page 1081, as assistant to the vice-president.

Stan Means has been appointed manager of the newly-formed industrial division of the sales department of **R. G. LeTourneau, Inc.** Primary purpose of the indus-

Stan Means

trial division, which has its headquarters at Peoria, Ill., is to give special attention to the sale of LeTourneau equipment to railroads. Mr. Means formerly was with the Santa Rita Copper Company, Tucson, Ariz., and was general superintendent for the Stanley Jaicks Company, Oak Park, Ill. He joined LeTourneau in 1936 as manager of the governmental sales division. He started the training division of the company in 1940. After serving as a direct sales and service representative in the Peoria territory, he was transferred to Washington, D. C., where he handled the company's priority work until his new appointment as head of the industrial division.

The **Portland Cement Association** has announced the following new assignments of its staff personnel: **M. J. McMillan,** manager of the Washington office since 1936, has been transferred to New York as regional manager of the eastern offices. **James E. Dunn,** district engineer of the Richmond, Va., office since 1938, has been appointed manager of the Washington office; and **Gordon S. Maynard,** field engineer in North Carolina and Virginia for the association since 1937, succeeds Mr. Dunn as district engineer at Richmond. **E. M. Fleming** is district manager at New York, in charge of field activities in Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont, and **G. C. Britton,** district manager at Philadelphia, Pa., covers Delaware, Maryland and Pennsylvania.

John F. Hutson has been appointed district sales manager, Chicago territory, including Omaha, Neb., St. Paul, Minne-

John F. Hutson

apolis, and Duluth, Minn., for the **National Malleable & Steel Castings Co.,** to succeed **Tom W. Aishton,** who has retired because of ill health. Mr. Hutson has been with National Malleable since 1919, serving in Cleveland, Ohio, Washington, D. C., and Chicago. Since 1936 he has been sales agent at the Chicago railway sales office. **Frank E. Moffett** has been appointed assistant district sales manager for the Chicago territory, a newly created position. He joined National Malleable in 1908 as a draftsman at the Chicago Melrose Park works. In 1919 he was appointed plant and safety engineer at the Cleveland works,

Frank E. Moffett

returning to Chicago in 1924 as service engineer in railway sales. He was promoted to sales agent in 1930.

Robert D. McManigal has been elected a vice-president of the **Westinghouse Electric International Company.** Mr. McManigal, whose office is in New York, has been manager of the International Company's associated companies department since 1940.

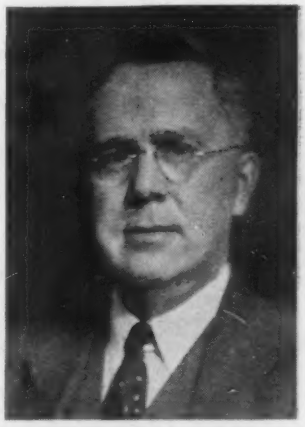
The **General American Transportation Corporation** has completed negotiations for the acquisition of the **Eclipse Moulded Products Company** of Milwaukee, Wis., manufacturers and distributors of plastic products, which will be operated under the same management.

John D. Ritchie, chief inspector of the **Douglas Fir Plywood Association,** has been promoted to chief of the research department, with headquarters as before at Tacoma, Wash., succeeding **J. D. Long,** who is resuming his previous agricultural and educational work. **George M. Williams** has been appointed chief inspector, replacing Mr. Ritchie.

OBITUARY

Robert V. Clay, vice-president of the Hanna Coal Company, died at Cleveland, Ohio, on June 8. Mr. Clay has been associated with the M. A. Hanna Company and subsidiaries for over 35 years.

Wallace T. Brassil, vice-president and general manager of the Adams & Westlake Co., whose death on June 3 was reported in the *Railway Age* of June 9, was born at Chicago on June 6, 1880, and after graduating from high school he entered the



Wallace T. Brassil

service of the Adams & Westlake Co. as an errand boy. During the next few years he held several minor positions. He later won advancement to various supervisory and executive posts and in 1930 he was elected to the position he held at the time of his death. Mr. Brassil was also a director of the Ace Carton Corp.

Equipment and Supplies

LOCOMOTIVES

The VIRGINIAN is inquiring for five 2-8-4 type freight locomotives with tenders.

The DELAWARE & HUDSON has ordered five freight locomotives of 4-6-6-4 wheel arrangement from the American Locomotive Company.

The RAPID CITY, BLACK HILLS & WESTERN has asked for prices on the following equipment: 25 40-ft. box cars of 50 tons' capacity; one 400-hp. Diesel-electric air conditioned 70-ft. rail motor car and two Diesel-electric freight locomotives, one of 800 hp. and the other of 1,000 hp. The locomotives, which will be used on 1 to 4½ per cent grades, are to be equipped with pilots at both ends.

Construction

ATLANTIC COAST LINE.—This railroad has authorized track work in the vicinity of Lake Harbor, Fla., to cost about $38,000. The railroad also awarded a contract for the construction of a 250-ton reinforced concrete mechanically operated coaling station, to replace a wooden trestle and coaling dock, at estimated cost of $35,000, to the Ogle Construction Company.

BALTIMORE & OHIO.—This railroad has awarded a contract for the construction of Diesel facilities in Washington, D. C., at estimated cost of $20,000, to the Steiner Construction Company of Baltimore, Md.

BANGOR & AROOSTOOK.—This railroad has awarded a contract for the construction of a coal shed and sand house at Millinocket, Me., at estimated cost of $34,400, to the T. W. Cunningham Construction Company, Bangor, Me.

CHICAGO, ROCK ISLAND & PACIFIC.—This road has applied to the Interstate Commerce Commission for authority to construct 16.19 miles of new line between Paris, Iowa, and Floris in lieu of the existing 17.62-mile line connecting these points, which is to be abandoned upon completion of the new work.

NEW YORK CENTRAL.—This railroad has awarded a contract for paving and drainage work in the car repair yard at Selkirk, N. Y., including necessary grading and excavation, to the Lane Construction Company, Meriden, Conn., and a contract for the reconstruction of bridge No. 700 near North street, Rochester, N. Y., to the Fred Ballard Construction Company, Syracuse, N. Y.

NORTHERN PACIFIC.—Division 4 of the Interstate Commerce Commission has authorized this company to build a 16.5-mile segment of main line from New Salem, N. D., to Kurtz in lieu of the existing 25.8-mile line between the same points, which will be abandoned upon completion of the new work. The new line will be single track, laid with 112-lb. rail, with 0.45 per cent maximum grade in each direction and a maximum rate of curve of 30 min. Its cost is estimated as $2,735,200. The division's certificate requires completion by December 31, 1946.

UNION PACIFIC.—This road has awarded a contract, amounting to $75,000, to the Cannon Construction Company, Salt Lake City, Utah, for the construction of a freight station and office building at Laramie, Wyo. The building will be a one-story structure, with concrete foundations and floors and with steel roof trusses. The offices will have floor tiles and ceilings covered with acoustical material.

755TH RAILWAY SHOP BATTALION.—In the five months from October, 1944, through February of this year, more than 250 locomotives and 2,000 cars were repaired and put back into service by the Transportation Corps' 755th railway shop battalion in France. In the same period, 30 U. S. Army Consolidation type locomotives were also equipped with steam heat for use on hospital trains. Seven locomotives were equipped with snow plows.

Financial

BALTIMORE & OHIO.—*Financial Adjustment.*—Division 4 of the Interstate Commerce Commission has issued a corrected report in the proceeding in which it authorized the sale to the Reconstruction Finance Corporation of $84,563,276 of this road's 4 per cent collateral trust bonds (previous item in *Railway Age* of June 9, page 1034). In the corrected report the reference to the matured securities of the company held by the R. F. C., for which the new issue is to be exchanged, omitted the comment that the matured securities have since been carried in default by the R. F. C.

BOSTON & MAINE.—*Promissory Notes.*—Division 4 of the Interstate Commerce Commission has authorized this company to issue $563,914 of promissory notes in evidence, but not in payment, of the unpaid portion of the purchase price of one 4,000-hp. diesel-electric passenger locomotive bought under a lease-purchase agreement from the Electro-Motive Division of General Motors Corporation at $353,014 and three 1,000-hp. diesel-electric switching locomotives bought under a conditional sale agreement from the American Locomotive Company at $78,500 each. The notes were sold to the National Commercial Bank & Trust Company of Albany, N. Y., with a 1.4 per cent interest rate. Since January 1, 1943, the division pointed out, this road has retired more than $24,000,000 face value of debt, most of which carried 4 per cent or 5 per cent interest rates.

CHESAPEAKE & OHIO.—*Equipment Trust Certificates.*—This company has applied to the Interstate Commerce Commission for authority to assume liability for $1,500,000 of equipment trust certificates in connection with the purchase, from the Lima Locomotive Works, of 10 2-8-4 freight locomotives, class K, at a total cost of $2,150,000.

CHICAGO, AURORA & ELGIN.—*Reorganization Date Set.*—Federal District Judge Barnes at Chicago has given Arthur L. Schwartz, trustee of this road, until August 15 to file a plan for reorganization of the company in bankruptcy proceedings under chapter 10 of the Chandler Act. The C. A. & E., has been in equity receivership since July, 1932.

DELAWARE & HUDSON.—*Albany & Susquehanna Merger.*—Division 4 of the Interstate Commerce Commission has authorized the Delaware & Hudson Company, a holding company, to acquire control of the Albany & Susquehanna through the merger of that company into the Delaware & Hudson Railroad Corporation, controlled by the holding company through ownership of all its stock. To complete the transaction, the holding company has been authorized to issue 27,914 shares of capital stock and to assume liability for $4,187,100 of Albany & Susquehanna 4½ per cent general mortgage bonds, in order to exchange such securities for A. & S. stock outstanding at the rate of one share of new stock and $150 face value of the A. & S. bonds for each share of A. & S. stock, on which a 9 per cent annual rental is now being paid by the D. & H. as lessor. The railroad's ownership of A. & S. stock, amounting to 7,086 shares, is to be canceled. (Previous item in *Railway Age* of April 21, page 736.) The transaction has been approved by a sufficient number of shareholders of each company to effectuate the merger, thus bringing about simplification of system capital structure and removing uncertainties as to tax liabilities. In addition, some reduction in fixed charges will be realized, and a program to refund the system debt can be carried ahead.

GREAT NORTHERN.—*Preferred Stock.*—At this company's request, Division 4 of the Interstate Commerce Commission has modified its order of February 29, 1936, authorizing it to issue certain shares of preferred stock to be exchanged for convertible bonds, to reduce to a total of 3,104,478½ shares the number that may be issued for such purpose and to reduce to 606,995 shares the number that may be exchanged for series G and H general mortgage 4 per cent convertible bonds, the conversion rights therein having expired.

LOUISVILLE & NASHVILLE.—*Bonds.*—This road has applied to the Interstate Commerce Commission for authority to issue and sell $53,119,000 of first and refunding mortgage bonds, series G, the proceeds to be used along with treasury funds to redeem first and refunding series E, 3¾ per cent bonds outstanding in the amount of $24,654,000 and unified mortgage 4s outstanding in the amount of $28,465,000. The former which mature April 1, 2003, would be called for redemption at 105 on October 1, while the latter, which mature January 1, 1960, would be called for redemption at 104 on January 1, 1946. The proposed new bonds, maturing in 2003, would bear interest at a rate to be named by the successful bidder for the issue—but not more than three per cent. The application states that the refinancing will bring annual savings in charges of $469,555.

Average Prices Stocks and Bonds

	June 19	Last week	Last year
Average price of 20 representative railway stocks	58.38	56.13	41.67
Average price of 20 representative railway bonds	99.85	99.48	88.70

Dividends Declared

Allegheny & Western.—guaranteed, $3.00, semi-annually, payable July 2 to holders of record June 20.

Canada Southern.—$1.50, semi-annually, payable August 1 to holders of record June 23.

Canadian Pacific.—4% non-cum. preferred, 2%, payable August 1 to holders of record June 30.

Carolina, Clinchfield & Ohio.—$1.25, quarterly, payable July 20 to holders of record July 10.

Connecticut & Passumpsic Rivers.—6% preferred, $3.00, semi-annually, payable August 8 to holders of record July 1.

Mahoning Coal.—common, $6.25; 5% preferred, $1.25, semi-annually; both payable July 2 to holders of record June 23.

Massawippi Valley.—$3.00, semi-annually, payable August 8 to holders of record July 1.

New London Northern.—$1.75, quarterly, payable July 2 to holders of record June 15.

Northern Central.—$2.00, semi-annually, payable July 14 to holders of record June 30.

Pere Marquette.—preferential preferred A, $1.25, payable August 1 to holders of record July 6.

Pittsfield & North Adams.—$2.50, semi-annually, payable July 2 to holders of record June 23.

Providence & Worcester.—$2.50, quarterly, payable July 2 to holders of record June 13.

Savannah & Atlanta.—5% preferred, $1.25, quarterly, payable July 1 to holders of record June 13.

Wheeling & Lake Erie.—75¢, payable July 1 to holders of record June 26.

News Department continued on next left-hand page

Over the Alleghenies

. . . to the Atlantic

In 1944 the Chesapeake and Ohio delivered at Newport News 6,526,000 tons of coal, hauled over the Alleghenies from the coal fields by locomotives especially designed for tough mountain grades.

For this service the Chesapeake and Ohio's fleet of Lima-built 2-6-6-6 steam locomotives has been steadily increased, until forty-five of these "Allegheny" type giants are now speeding coal to the seaboard to help maintain the war effort.

LIMA LOCOMOTIVE WORKS LIMA LOCOMOTIVE WORKS INCORPORATED INCORPORATED, LIMA, OHIO

Abandonments

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—This road has applied to the Interstate Commerce Commission for authority to abandon two segments of its westbound main track in the vicinity of Watson, Minn., a total of 8.22 miles. This line has difficult grades, according to the application, while the more recently built eastbound track, which is parallel, but not immediately adjacent, to the westbound track, has low grades. It is proposed to equip this eastbound track with centralized traffic control for operation in both directions as a single track line, and a 0.98-mile connection will be built from it to Watson, so that point will continue to have rail service.

CHICAGO, ROCK ISLAND & PACIFIC.—As a part of a project to modernize its line from Paris, Iowa, to Floris, 18.1 miles, this road has asked the Interstate Commerce Commission for authority to abandon 17.52 miles of line in that territory upon completion of new construction.

NORTHERN PACIFIC.—Division 4 of the Interstate Commerce Commission has authorized this company to abandon a segment of main line from New Salem, N. D., to Kurtz, 25.8 miles, upon completion of a new line, 16.5 miles in length, between these points. The Public Service Commission of North Dakota had opposed the discontinuance of rail service to Almont, a station on the line to be abandoned, to continue which it would be necessary to retain about 12 miles of the existing line. The division held that removal of grain elevators to a point on the new line would not leave sufficient traffic to warrant continuing this service.

READING.—Division 4 of the Interstate Commerce Commission has authorized this company to abandon a 1,500-ft. spur in the vicinity of Boiling Springs, Pa.

Railway Officers

EXECUTIVE

J. S. Thorp, electrical engineer of the Delaware, Lackawanna & Western at Hoboken, N. J., has been appointed assistant to the vice-president.

Col. B. L. Bugg, president of the Atlanta, Birmingham & Coast at Atlanta, Ga., will retire on July 1 after 57 years of transportation service. **C. McD. Davis,** vice-president at Wilmington, N. C., has been elected to succeed him at that time. Mr. Davis will continue to serve as president of the Atlantic Coast Line, which owns all of the common stock of the Atlanta, Birmingham & Coast, and his office will remain at Wilmington.

J. F. Garvin, vice-president, traffic, of the Missouri-Kansas-Texas at St. Louis, Mo., has been appointed vice-president, traffic, of the Missouri-Kansas-Texas Railway Company of Texas, with the same headquarters. The new appointment extends his jurisdiction over the entire system. **J. F. Hennessey, Jr.,** traffic manager, solicitation, with headquarters at St. Louis, has been appointed assistant vice-president, traffic, a change of title. The position of traffic manager, solicitation, has been abolished.

Raymond J. Morfa, assistant to the chairman of the board of the Chesapeake & Ohio at Cleveland, Ohio, has been elected vice-president of the Pere Marquette and the New York, Chicago & St. Louis in addition to his other duties.

Lawrence C. Windham, Sr., whose promotion to assistant to the vice-president and general manager of the Gulf, Mobile & Ohio, with headquarters at Mobile, Ala., was reported in the *Railway Age* of June 2, was born in Smith County, Miss., on May 4, 1895. He entered railway service on April 16, 1913, as a clerk of the Gulf, Mobile & Northern (now the G. M. & O.) at Laurel, Miss., and in the same year he was advanced to chief clerk to the roadmaster at New Albany, Miss. From 1914 to 1919 Mr. Windham served as an account-

Lawrence C. Windham, Sr.

ant of the maintenance of way and structures department and as chief clerk of the chief engineer of that department at Laurel, and in January, 1920, he was transferred to the office of the division superintendent at New Albany, being transferred in the same year to Laurel. In 1925 he was transferred to the office of the assistant general manager, and a short time later to the office of the general manager, with headquarters at Laurel. In September, 1940, Mr. Windham was promoted to assistant to the general manager, with headquarters at Mobile, the position he held at the time of his new appointment.

FINANCIAL, LEGAL AND ACCOUNTING

G. E. Chessman, general auditor of the Elgin, Joliet & Eastern at Chicago, has been elected comptroller, with the same headquarters, a change of title.

John F. Aitchison, whose retirement as general auditor of the Canadian National at Montreal, Que., was announced in the *Railway Age* of June 16, was born at Edinburgh, Scotland, in May, 1880, and entered railroading in 1897 as a clerk of the Canadian National at London, Ont. He later transferred to the accounting department, and in 1919 he was named auditor of disbursements at Montreal. In 1923 he was appointed assistant comptroller at Toronto, Ont., and on June 1, 1930, he was advanced to regional auditor. Mr. Aitchison returned to Montreal in August, 1938, as general auditor, the position he held at the time of his recent retirement.

OPERATING

G. H. James has been appointed assistant superintendent of the Maryland division of the Pennsylvania.

L. W. Green has been appointed assistant to general superintendent transportation of the Atlantic Coast Line, with headquarters at Wilmington, N. C.

J. I. Groleau, assistant superintendent of the Canadian National at Levis, Que., has been appointed trainmaster at Fitzpatrick, Que., succeeding **J. A. Caron. J. A. Danjou** has been named to succeed Mr. Groleau at Levis.

J. A. Burke, trainmaster of the Baltimore & Ohio at Gassaway, W. Va., has been appointed day terminal trainmaster at Baltimore, Md., succeeding **C. L. Senheiser,** who has resigned. **J. A. Curtis** has been named trainmaster of the Monongah division at Gassaway, succeeding Mr. Burke.

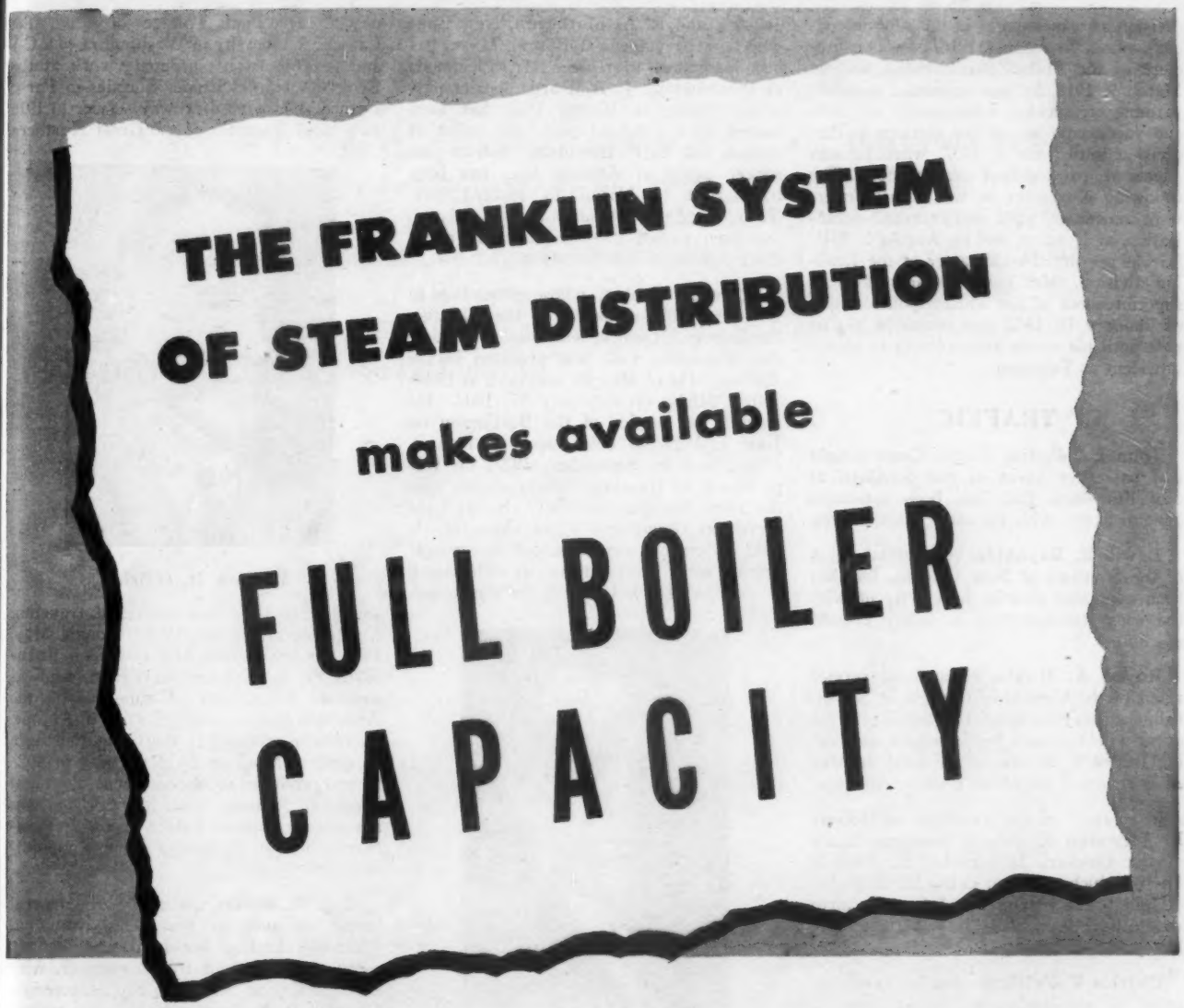
C. J. O'Neill, superintendent of the Shamokin division of the Reading at Tamaqua, Pa., has been appointed superintendent stations and transfers, with headquarters at Reading, Pa., and **Arthur N. Jewell,** assistant superintendent at Philadelphia, Pa., has been named to succeed him. **R. C. Thran,** assistant superintendent at Reading, Pa., has been transferred to Philadelphia to replace Mr. Jewell, and **W. S. Sloatman,** division engineer at Tamaqua, has

Arthur N. Jewell

been promoted to assistant superintendent succeeding Mr. Thran.

Mr. Jewell was born on February 24, 1898, and entered railroading with the Reading as a clerk in the office of the auditor passenger traffic on October 13, 1913. Two years later he went to the New York

News Department continued on next left-hand page



WITH conventional cylinders, valves and valve gears, there are definite design limitations which prevent the full utilization of boiler capacity.

The Franklin System of Steam Distribution entirely eliminates these design limitations, and makes possible the full utilization of the potential boiler capacity, insuring a substantial increase in horsepower output and productive capacity.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.
NEW YORK • CHICAGO
In Canada: FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL

division as a messenger in the superintendent's office. In August, 1916, he was named clerk of the Philadelphia division, and on March 9, 1918, he was appointed assistant yardmaster, serving subsequently as clerk and yardmaster at various stations in that division until June 1, 1937, when he was advanced to assistant trainmaster. The following November he was named supervisor terminals, yard and terminal organization, at Reading, and on August 1, 1941, he was appointed trainmaster of the Reading division. Mr. Jewell became assistant superintendent of the Philadelphia division on January 16, 1942, and remained in that post until his recent advancement to superintendent at Tamaqua.

TRAFFIC

John L. Martin, Pacific Coast freight and passenger agent of the Southern at San Francisco, Cal., has been appointed general agent, with the same headquarters.

Lewis E. Reynolds, commercial agent of the Southern at New Orleans, La., has been appointed district freight agent with the same headquarters, a newly created position.

Royce A. Hoyle, commercial service agent of the Central of Georgia at Savannah, Ga., has been appointed division freight agent with the same headquarters, succeeding **James Y. Bruce,** whose death on May 26 is reported elsewhere in these volumns.

In a report of the promotion of **Robert F. Johnston** to general passenger agent of the Chicago, Milwaukee, St. Paul & Pacific which appeared in the *Railway Age* of June 9, the year of Mr. Johnston's birth should have been given as 1899, instead of 1889 as published.

Charles F. Feltham, division passenger agent of the Delaware, Lackawanna & Western at Newark, N. J., has been promoted to general eastern passenger agent at New York succeeding Michael H. Murphy, whose death was reported in the *Railway Age* of June 16. **Robert H. Taylor,** city passenger agent at Newark, has been named to succeed Mr. Feltham.

C. R. McDonald, executive representative of the Missouri-Kansas-Texas at St. Louis, Mo., has been promoted to freight traffic manager, with the same headquarters. The position of executive representative has been abolished. **R. C. Trovillion,** freight traffic manager, has been advanced to general freight traffic manager, with headquarters as before at St. Louis. **H. R. Smith,** assistant general freight agent at St. Louis, has been promoted to general freight agent, with the same headquarters, succeeding **D. J. Collins,** who in turn has been advanced to freight traffic manager, replacing Mr. Trovillion.

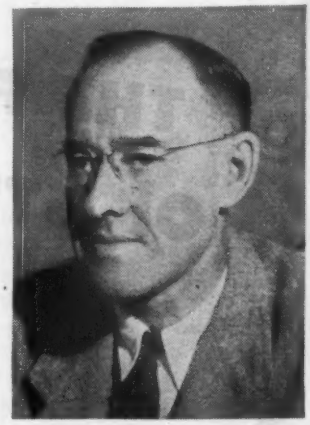
P. A. Jenkins, district passenger agent of the Southern at Birmingham, Ala., has been appointed division passenger agent there succeeding W. S. Hyman, whose promotion to assistant general passenger agent at Washington, D. C., was announced in the *Railway Age* of June 9. **R. W. Plemmons,** division passenger agent at Washington, has been named district passenger agent at Birmingham replacing Mr. Jenkins, and **R. A. Matheson,** New England passenger agent at Boston, Mass., has been appointed to replace Mr. Plemmons at Washington. **J. R. Ford,** district passenger agent at Miami, Fla., has been named New England passenger agent at Boston, and **T. F. Davidson,** district passenger agent at Atlanta, Ga., has been transferred to Miami to succeed him. **T. L. Reed,** troop train escort at Atlanta, has been named district passenger agent there replacing Mr. Davidson.

Starr S. Hankis, whose promotion to western traffic manager of the Chicago, Burlington & Quincy, with headquarters at San Francisco, Cal., was reported in the *Railway Age* of May 26, was born at Coldwater, Mich., on February 17, 1902. He entered the service of the Burlington on June 1, 1925, as chief clerk at Detroit, Mich., and in September, 1927, he was promoted to traveling freight agent, with the same headquarters. Mr. Hankis later served as commercial agent until July 1, 1932, when he was advanced to general agent, with headquarters at Cleveland, Ohio. On March 15, 1938, he was transferred to Pittsburgh, Pa., and on January 1, 1941, he was promoted to general freight agent, with headquarters at Chicago, the position he held at the time of his new appointment.

Starr S. Hankis

Benjamin Garfield Brink, whose appointment as general freight agent of the Bessemer & Lake Erie at Pittsburgh, Pa., was announced in the *Railway Age* of June 9, was born at Meadville, Pa., and entered railroading with the Bessemer & Lake Erie as a clerk at Albion, Pa., on July 1, 1900. He transferred to the freight traffic department at Pittsburgh as assistant rate clerk on September 5, 1906, and on March 1, 1928, he was named chief rate and percentage clerk. Mr. Brink was appointed assistant general freight agent at Pittsburgh on June 17, 1940, and remained in that post until his recent promotion to general freight agent with the same headquarters.

Wallace D. O'Brien, whose promotion to assistant freight traffic manager of the Great Northern, with headquarters at St. Paul, Minn., was reported in the *Railway Age* of June 9, was born at St. Paul on December 7, 1896, and attended St. Thomas Military Academy, the University of Minnesota, St. Paul College of Law, the Catholic University in Washington (D. C.) and later took post graduate work at the Ecole des Hautes Etudes Sociales in Paris, France. He entered railway service in 1916 as a tariff inspector of the Great Northern and a year later was appointed traveling freight agent. From 1918 through May, 1920, he served as a first lieutenant in the 349th U. S. Infantry in France and as assistant comptroller of supplies for the American Red Cross relief work in Europe. In 1920 he returned to the Great Northern as general agent at St. Paul, and in 1928 he was promoted to assistant general freight agent. In January, 1942, Mr. O'Brien was advanced to general freight agent, the position he held at the time of his new appointment.



Wallace D. O'Brien

Earl W. Fisher, assistant to the general traffic manager of the Pennsylvania at Philadelphia, Pa., has been promoted to southwestern freight traffic manager, with headquarters at St. Louis, Mo., succeeding **Charles B. Sudborough,** who has retired after 48 years of service.

Mr. Fisher was born at Leesport, Pa., in 1896, and received his higher education at the University of Pennsylvania. He entered railway service on August 31, 1914, as a clerk of the Pennsylvania at Reading, Pa., and in 1917 he was appointed a locomotive fireman, with the same headquarters. Later he served in various clerical capacities at Philadelphia, including special agent, commerce agent and coal freight

Earl W. Fisher

News Department continued on next left-hand page

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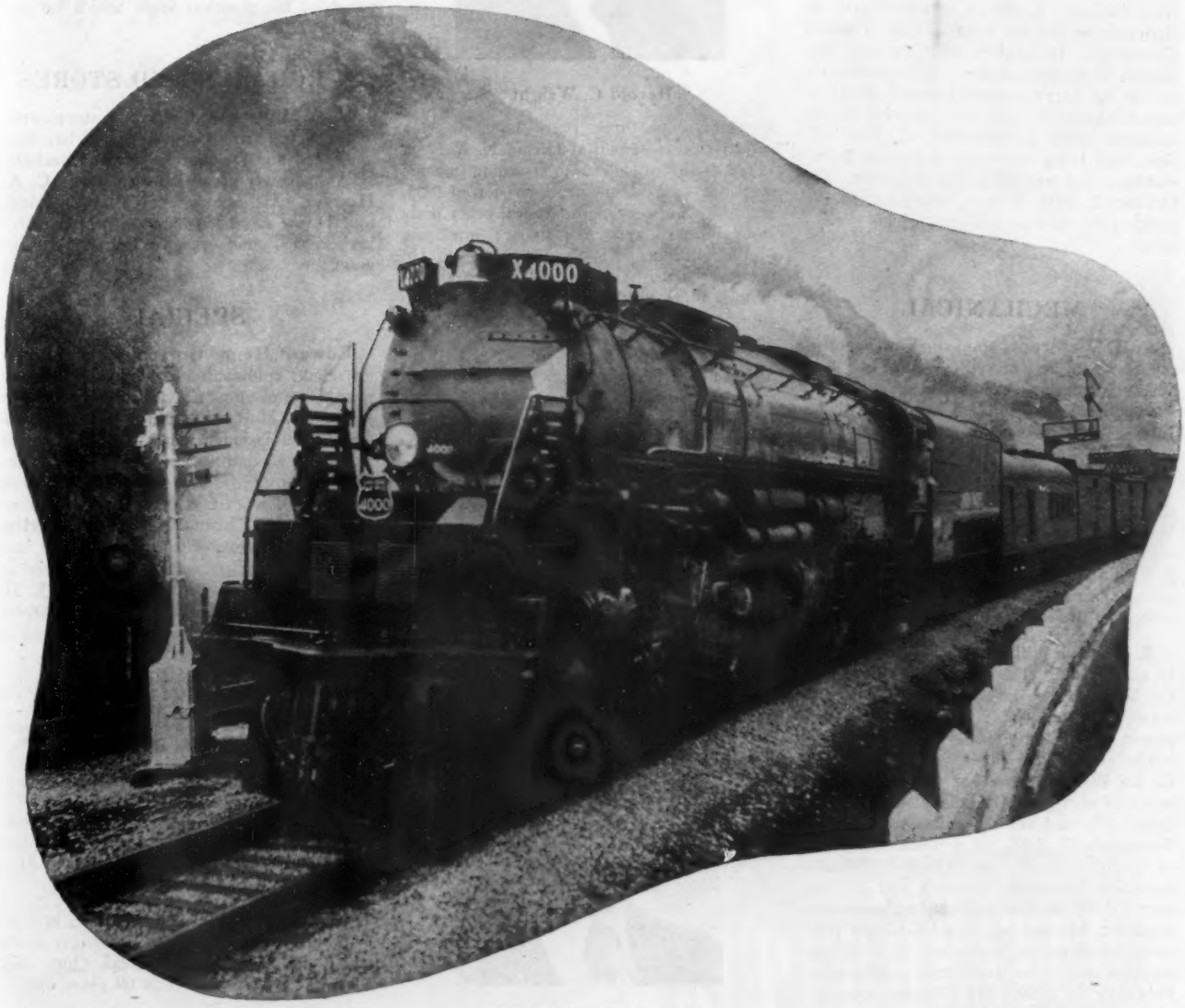

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agent. In March, 1934, Mr. Fisher was promoted to division freight agent, with headquarters at Cincinnati, Ohio, being advanced in the same year to general coal freight agent at Chicago. In January, 1937, he was further advanced to general agent, with the same headquarters, and in June, 1940, he was promoted to the position he held at the time of his new appointment.

Mr. Sudborough was born at St. Louis on November 1, 1876, and entered railway service in September, 1897, as a clerk of the freight claim department of the Pennsylvania. He held several positions including division freight agent and assistant general freight agent at St. Louis until 1916 when he was promoted to general freight agent, with the same headquarters. During World War I, Mr. Sudborough served as a member of the St. Louis Western District Freight Traffic Committee and as chairman of the St. Louis Traffic Control Committee. In March, 1920, he was advanced to traffic manager, with headquarters at St. Louis, and in January, 1925, he was advanced to assistant general traffic manager, with headquarters at Philadelphia, later being promoted to general traffic manager and assistant vice-president. On October 1, 1938, he was appointed to the position he held at the time of his retirement.

MECHANICAL

A. G. Waldrupe, shop superintendent of the Southern at Knoxville, Tenn., has been appointed master mechanic at Bristol, Va., succeeding J. L. Cantwell, whose death on June 4 was announced in the *Railway Age* of June 16.

Andrew B. Costic, assistant electrical engineer of the Delaware, Lackawanna & Western, has been promoted to electrical engineer at Hoboken, N. J., succeeding **J. S. Thorp,** whose appointment as assistant to the vice-president is announced elsewhere in these columns.

S. O. Rentschler, who resigned recently as assistant chief mechanical officer of the Missouri Pacific at St. Louis, Mo., has been appointed superintendent of motive power of the Elgin, Joliet & Eastern, with headquarters at Joliet, Ill., succeeding **C. L. Wilson,** who has retired after 47 years of service. Mr. Wilson was born at Joliet, Ill., and entered railway service on November 25, 1897, as a machinist helper of the E. J. & E. On March 3, 1898, he became a locomotive fireman, and on January 8, 1903, he was promoted to locomotive engineer. He was appointed assistant train rules examiner on September 21, 1918, and was promoted to traveling engineer on February 1, 1919. Mr. Wilson was appointed air brake supervisor on January 15, 1925, and on August 1, 1933, he was promoted to master mechanic at Joliet and in May, 1938, he was advanced to the position he held at the time of his retirement.

Harold C. Wright, whose promotion to superintendent of motive power of the Pennsylvania's Eastern Ohio division, with headquarters at Pittsburgh, Pa., was announced in the *Railway Age* of May 5, was born at Altoona, Pa., and after graduating from Pennsylvania State College he entered railroading as a storehouse attendant of the Pennsylvania at Altoona in 1911. In 1921 he was advanced to motive power

Harold C. Wright

inspector, and three years later he was named gang foreman at Olean, N. Y. Mr. Wright was advanced to assistant master mechanic of the Pittsburgh division in 1935, and following service on several other divisions he was appointed master mechanic of the Williamsport division in 1940. He transferred to Altoona in 1942 and remained there until his recent promotion to superintendent of motive power at Pittsburgh.

Frank S. Robbins, whose retirement as general superintendent motive power of the Atlantic Coast Line at Wilmington, N. C., was announced in the *Railway Age* of June 9, was born at Menantico, N. J., on December 22, 1880, and attended Newark Technical School and Purdue University, from which he received his B. S. degree in mechanical engineering in 1906. He entered railroading in 1900 as a machinist appren-

Frank S. Robbins

tice of the Pennsylvania, and from 1906 to 1907 served as special apprentice in the Pennsylvania's Altoona shops. From 1907 to 1908 he was on special duty, and in 1909 he became motive power inspector at Renovo, Pa. The following year Mr. Robbins was named assistant master mechanic of the Monongahela division, returning to the Renovo division as assistant road foreman of engines in 1911, and being appointed assistant general foreman of the Pitcairn shops in 1913. He became assistant master mechanic of the Pittsburgh division in 1914, and after serving in the United States Army, Engineer Officers Reserve Corps, from 1916 to 1918, during which time he rose to the rank of major, he returned to that post and was promoted to master mechanic in 1919. In 1921 Mr. Robbins left the Pennsylvania and joined the Inter-allied Technical Board, Trans-Siberian Rys., at Harbin, China, as mechanical adviser, and in 1923 he was named railway representative of the Pittsburgh Testing Laboratory. He served as superintendent, motive power and machinery, of the Florida East Coast at St. Augustine, Fla., from 1926 to 1937, when he was appointed general superintendent motive power of the Atlantic Coast Line at Wilmington, the position from which he has now retired.

PURCHASES AND STORES

R. A. Livengood, division storekeeper of the Southern at Somerset, Ky., has been appointed division storekeeper at Charlotte, N. C., a newly created position, and **C. A. Hoover,** chief, stock records, at Washington, D. C., has been named division storekeeper at Somerset replacing Mr. Livengood.

SPECIAL

Edward Henry Gurton, western superintendent, colonization and agriculture department, of the Canadian National, at Winnipeg, Man., has been appointed European commissioner with headquarters at London, England, succeeding **Daniel Macfie Johnson,** who has been named eastern superintendent of that department at Montreal, Que. **Thomas Parker Devlin,** assistant director of the colonization and agriculture department, has been placed in charge of the western region, and **J. D. Guild,** agricultural agent at Saskatoon, Sask., has been appointed superintendent at Winnipeg.

OBITUARY

William McCormick, assistant engineer of the Reading, died at Philadelphia, Pa., on May 16.

James Y. Bruce, division freight agent of the Central of Georgia with headquarters at Savannah, Ga., died there on May 26.

E. F. L. Sturdee, who retired in 1942 as assistant passenger traffic manager of the Canadian Pacific at Montreal, Que., died there on June 17. He was 69 years old.

James D. Altimas, who retired in 1937 as assistant general superintendent, car service, of the Canadian Pacific, died at Montreal, Que., on June 12. He was 74 years of age.

Marcus L. Bell, vice-president and general counsel and a member of the board of the Chicago, Rock Island & Pacific, with headquarters at Chicago and New York, died at his home in Noroton, Conn., on June 15.

Table of Operating Revenues and Expenses appears on next left-hand page

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Operating Revenues and Operating Expenses of Class I Steam Railways

(Switching and Terminal Companies Not Included)

FOR THE MONTH OF APRIL, 1945 AND 1944

Item	United States		Eastern District		Southern District		Western District	
	1945	1944	1945	1944	1945	1944	1945	1944
Miles of road operated at close of month	228,529	228,765	56,005	56,116	43,329	43,384	129,195	129,265
Revenues:								
Freight	$594,314,285	$561,092,693	$229,876,117	$220,664,125	$114,114,656	$109,805,745	$250,323,512	$230,622,823
Passenger	129,202,322	146,592,258	53,534,683	57,126,037	25,422,607	29,876,471	50,245,032	59,589,750
Mail	10,656,783	10,437,113	3,543,500	3,454,785	1,901,990	2,075,285	5,211,293	4,907,043
Express	14,148,773	11,544,454	3,893,397	3,921,295	2,188,737	1,873,549	8,066,639	5,749,610
All other operating revenues	30,663,273	29,867,627	13,258,348	12,638,462	4,138,420	4,209,660	13,266,505	13,019,505
Railway operating revenues	778,985,436	759,534,145	304,106,045	297,804,704	147,766,410	147,840,710	327,112,981	313,888,731
Expenses:								
Maintenance of way and structures	106,005,883	102,111,481	37,425,496	38,908,600	19,054,837	17,007,831	49,525,550	46,195,050
Depreciation	9,783,624	8,821,732	4,262,714	3,807,157	1,629,518	1,459,007	3,891,392	3,555,568
Retirements	699,024	1,027,308	135,178	370,574	223,349	92,431	340,497	564,303
Deferred maintenance	*617,153	*782,983	*195,833	*174,313	.....	.....	*421,320	*608,670
Amortization of defense projects	2,148,322	1,444,169	644,434	484,007	373,854	246,110	1,130,034	714,052
Equalization	658,081	860,403	*40,584	*288,431	377,826	168,009	320,839	980,825
All other	93,333,985	90,740,852	32,619,587	34,709,606	16,450,290	15,042,274	44,264,108	40,988,972
Maintenance of equipment	136,975,691	129,704,353	56,230,520	54,249,240	25,979,576	24,313,688	54,765,595	51,141,425
Depreciation	17,932,255	17,781,137	7,581,557	7,533,243	3,578,464	3,535,763	6,772,234	6,712,131
Retirements	*7,813	.....	1,045	.....	*3,513	.....	*5,345	.....
Deferred maintenance and major repairs	*194,804	*260,194	*8,973	2,560	.....	.....	*185,831	*262,754
Amortization of defense projects	17,712,417	13,726,880	5,925,623	4,511,903	4,293,822	3,643,220	7,492,972	5,571,757
Equalization	59,192	153,903	*22,341	18,487	81,966	81,925	*433	53,491
All other	101,474,444	98,302,627	42,753,609	42,183,047	18,028,837	17,052,780	40,691,998	39,066,800
Traffic	11,895,757	11,035,295	4,250,280	4,041,036	2,225,954	1,894,469	5,419,523	5,099,790
Transportation—Rail line	250,338,423	239,872,296	112,044,701	106,836,652	42,471,970	41,050,381	95,821,752	91,985,263
Transportation—Water line	13	308	.....	.....	.....	.....	13	308
Miscellaneous operation	9,476,538	9,843,133	3,417,915	3,388,678	1,493,752	1,658,705	4,564,871	4,795,750
General	16,996,801	16,436,937	6,864,344	6,492,324	3,310,578	3,211,891	6,821,879	6,732,722
Railway operating expenses	531,689,106	509,003,803	220,233,256	213,916,530	94,536,667	89,136,965	216,919,183	205,950,308
Net revenue from railway operations	247,296,330	250,530,342	83,872,789	83,888,174	53,229,743	58,703,745	110,193,798	107,938,423
Railway tax accruals	138,553,844	144,022,528	37,908,506	43,079,873	33,708,184	36,948,337	66,937,154	63,994,318
Pay-roll taxes	19,212,397	19,258,689	8,051,746	7,935,889	3,315,501	3,327,965	7,845,150	7,994,835
Federal income taxes†	93,601,215	99,490,625	18,628,160	24,388,259	25,267,485	28,367,121	49,705,570	46,735,245
All other taxes	25,740,232	25,273,214	11,228,600	10,755,725	5,125,198	5,253,251	9,386,434	9,264,238
Railway operating income	108,742,486	106,507,814	45,964,283	40,808,301	19,521,559	21,755,408	43,256,644	43,944,105
Equipment rents—Dr. balance	13,393,740	13,264,531	7,902,795	6,263,766	521,077	1,235,441	4,969,868	5,765,324
Joint facility rent—Dr. balance	3,443,766	3,572,345	1,755,733	1,754,067	417,382	394,111	1,270,651	1,424,167
Net railway operating income	91,904,980	89,670,938	36,305,755	32,790,468	18,583,100	20,125,856	37,016,125	36,754,614
Ratio of expenses to revenues (per cent)	68.3	67.0	72.4	71.8	64.0	60.3	66.3	65.6

FOR FOUR MONTHS ENDED WITH APRIL, 1945 AND 1944

Item	United States		Eastern District		Southern District		Western District	
	1945	1944	1945	1944	1945	1944	1945	1944
Miles of road operated at close of month	228,540	228,823	56,008	56,115	43,332	43,387	129,200	129,321
Revenues:								
Freight	$2,313,191,413	$2,257,906,624	$871,754,710	$883,866,860	$456,780,296	$444,339,239	$984,656,407	$929,700,525
Passenger	527,932,164	570,347,172	215,676,243	223,617,412	106,987,506	116,713,788	205,268,415	230,015,972
Mail	42,385,185	41,184,921	14,093,297	13,714,271	7,528,909	7,859,835	20,762,979	19,610,815
Express	54,695,744	48,620,540	16,229,094	16,560,078	8,398,044	8,139,160	30,068,606	23,921,302
All other operating revenues	118,251,641	114,481,299	51,974,650	49,055,778	16,834,168	16,496,897	49,442,823	48,928,624
Railway operating revenues‡	3,056,456,147	3,032,540,556	1,169,727,994	1,186,814,399	596,528,923	593,548,919	1,290,199,230	1,252,177,238
Expenses:								
Maintenance of way and structures	400,201,553	384,145,678	146,852,899	146,530,397	72,990,429	68,202,247	180,358,225	169,413,034
Depreciation	38,733,242	35,262,287	16,987,663	15,233,578	6,230,017	5,826,256	15,515,562	14,202,453
Retirements	1,859,391	3,524,866	401,548	1,104,089	462,046	345,784	995,797	2,074,993
Deferred maintenance	*1,452,373	*1,886,143	*322,830	*321,921	.....	.....	*1,129,543	*1,564,222
Amortization of defense projects	8,475,715	5,542,233	2,583,601	1,855,909	1,444,402	967,627	4,447,712	2,718,697
Equalization	16,856,394	16,322,214	9,113,290	8,612,468	3,949,232	2,482,257	3,793,872	5,227,489
All other	335,729,184	325,380,221	118,089,627	120,046,274	60,904,732	58,580,323	156,734,825	146,753,624
Maintenance of equipment	544,435,313	519,142,070	222,088,188	218,453,033	103,527,448	96,436,098	218,819,677	204,252,939
Depreciation	71,433,058	70,569,413	30,093,143	29,833,574	14,313,655	14,193,626	27,026,260	26,542,213
Retirements	*19,108	.....	*8,099	.....	*8,800	.....	*2,209	.....
Deferred maintenance and major repairs	*561,360	*443,552	*10,100	11,544	.....	.....	*551,260	*455,096
Amortization of defense projects	69,143,948	52,798,764	22,934,566	17,447,077	16,709,166	13,811,087	29,500,216	21,540,600
Equalization	554,757	425,443	*23,099	46,937	450,888	267,130	126,968	111,376
All other	403,884,018	395,792,002	169,101,777	171,113,901	72,062,539	68,164,255	162,719,702	156,513,846
Traffic	46,943,331	43,676,394	16,715,703	15,833,234	8,863,855	7,814,652	21,363,773	20,028,508
Transportation—Rail line	1,007,742,088	980,170,279	455,068,608	441,550,666	171,508,200	165,580,095	381,165,280	373,039,518
Transportation—Water line	995	1,179	.....	.....	.....	.....	995	1,179
Miscellaneous operation	38,238,304	39,078,037	14,106,018	13,729,542	6,071,241	6,577,301	18,061,045	18,771,194
General	68,813,161	66,330,426	27,770,995	26,812,248	13,248,326	12,635,532	27,793,840	26,882,646
Railway operating expenses	2,106,374,745	2,032,544,063	882,602,411	862,909,120	376,209,499	357,245,925	847,562,835	812,389,018
Net revenue from railway operations	950,081,402	999,996,493	287,125,583	323,905,279	220,319,424	236,302,994	442,636,395	439,788,220
Railway tax accruals	551,660,816	582,606,637	137,938,468	167,749,290	140,370,235	148,299,447	273,352,113	266,557,900
Pay-roll taxes	76,589,300	76,022,812	32,319,924	32,186,089	13,288,458	13,404,542	30,980,918	30,432,181
Federal income taxes†	375,961,065	407,144,477	63,936,323	94,219,571	106,528,217	114,412,243	205,496,525	198,512,663
All other taxes	99,110,451	99,439,348	41,682,221	41,343,630	20,553,560	20,482,662	36,874,670	37,613,056
Railway operating income	398,420,586	417,389,856	149,187,115	156,155,989	79,949,189	88,003,547	169,284,282	173,230,320
Equipment rents—Dr. balance	45,046,944	50,024,854	24,927,204	23,534,277	489,921	3,390,560	19,629,819	23,100,017
Joint facility rent—Dr. balance	13,519,304	13,632,258	6,742,305	6,703,664	1,447,805	1,523,357	5,329,194	5,405,237
Net railway operating income	339,854,338	353,732,744	117,517,606	125,918,048	78,011,463	83,089,630	144,325,269	144,725,066
Ratio of expenses to revenues (per cent)	68.9	67.0	75.5	72.7	63.1	60.2	65.7	64.9

* Decrease, deficit, or other reverse items.

† Includes income tax, surtax, and excess-profits tax.

‡ Railway operating revenues are after deduction of $13,622,551 for the four months ended with April 1945 and $13,110,859 for the four months ended with April 1944 to create a reserve for land grant deductions in dispute.

Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

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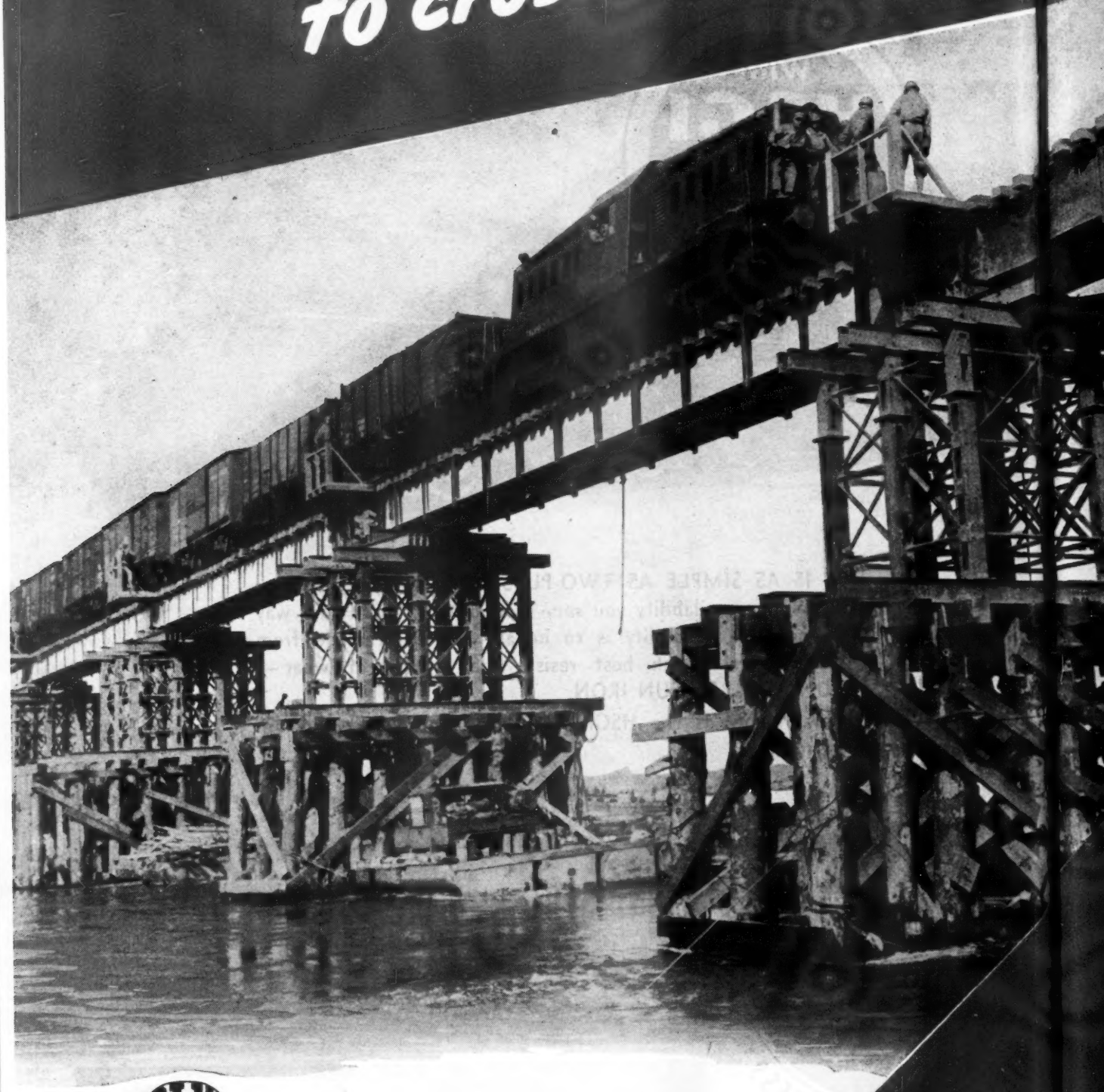

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A Whitcomb locomotive crossing the Rhine on a bridge constructed by U. S. Army engineers in less than eleven days.

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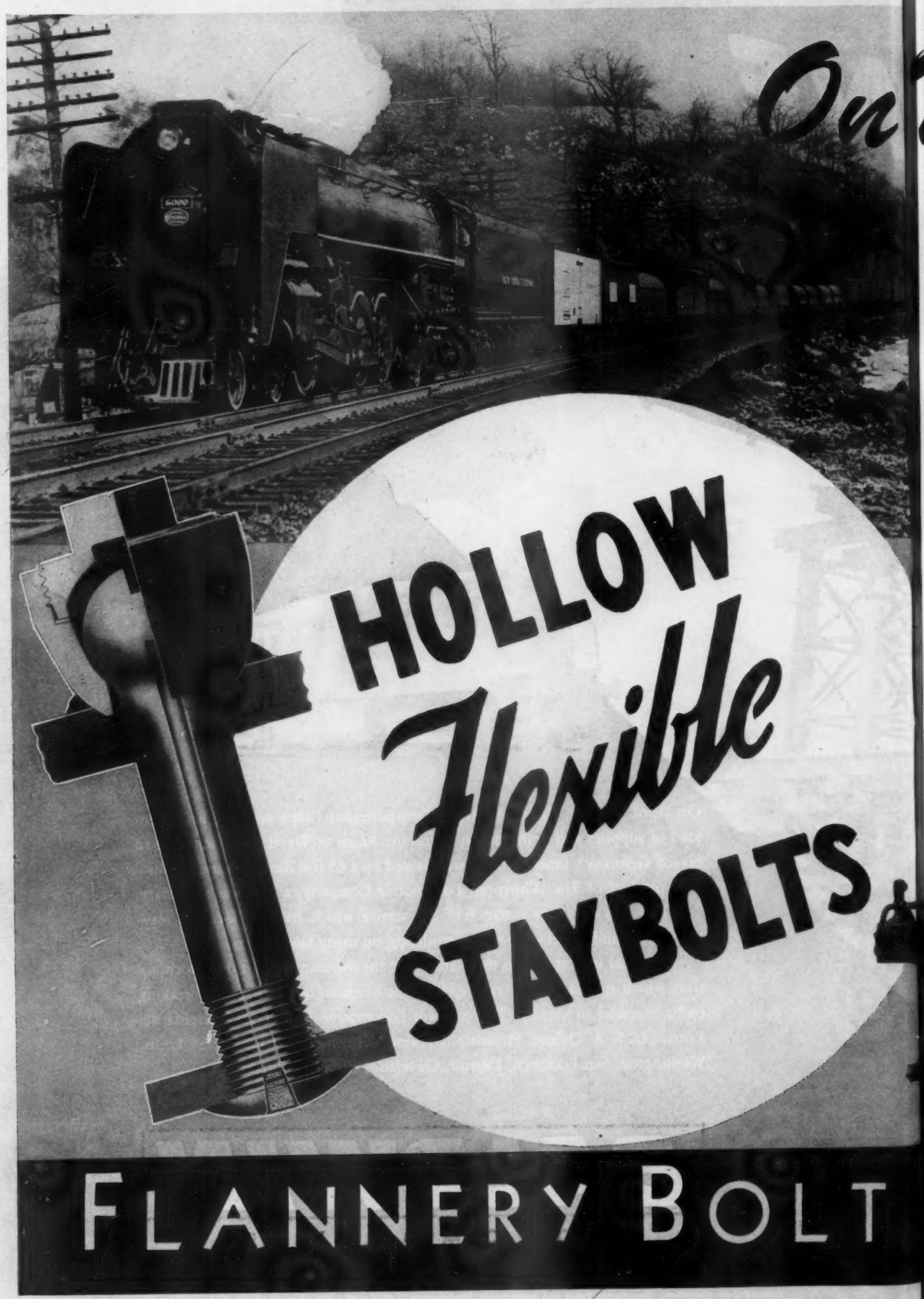
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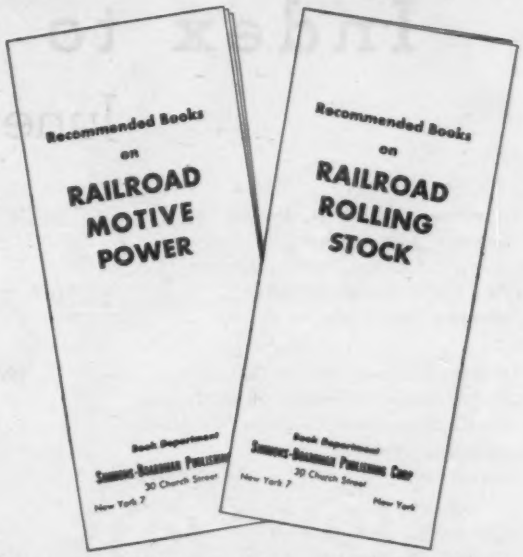

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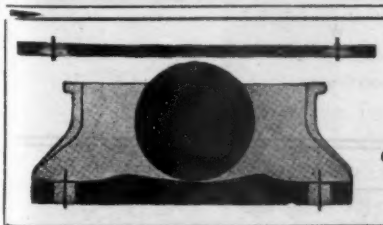

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June 23, 1945

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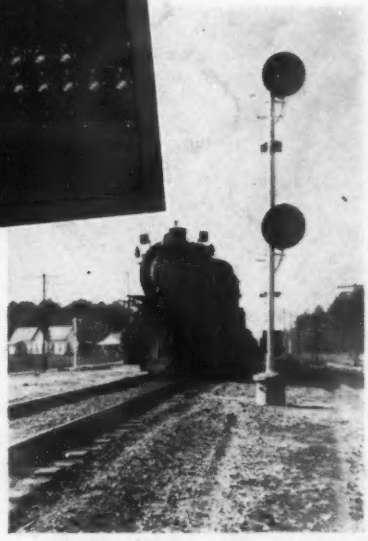

The KANSAS CITY SOUTHERN has recently installed G-R-S Centralized Traffic Control on 46 miles of busy single track between DeQuincy, La., and Beaumont, Texas. This is on the main line between Kansas City, Mo., and Port Arthur, Texas.

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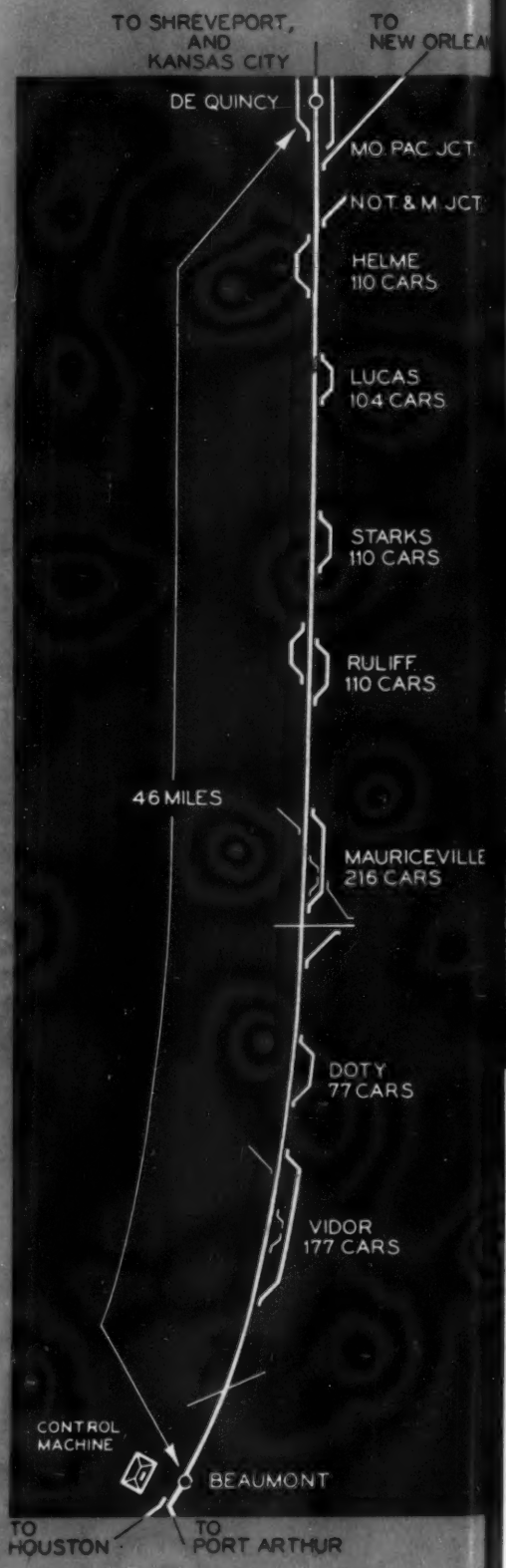

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